

# **The impact of birds-eye chili cultivation on farmers' income**

A case study of Torkor and Kudzra in the Kpando Municipality of Ghana



**Asase Edem David**

Master Thesis in Development Geography  
Department of Sociology and Human Geography  
University of Oslo  
May 2014

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Cover Image: A birds-eye chili farmer harvesting her crops. Source: Author

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## **Dedication**

*Dedicated to Dr. and Mrs. Ebenezer Painstil and family.*

## **Abstract**

*This study looks at the impact of non-traditional crops on farmers' income focusing on the cultivation of birds-eye chili in two rural communities in Ghana. The two communities selected for this study both display the emerging characteristics of smallholder farmers in sub-Saharan Africa who are gradually shifting from attempting to raise yields of current crops to the cultivation of new, high value export crops in order to accrue higher incomes. A qualitative research method was employed to understand the factors that influence farmers to shift to the cultivation of birds-eye chili, the problems that are encountered in this new activity and most importantly the effect this has on their incomes. Elements of the popular sustainable livelihoods framework were adopted for analysing the impacts. The study revealed a number of issues relevant to the discourse on improving incomes of smallholders. The study confirmed the shift of some smallholders to cultivation of new, high value export crops such as birds-eye chili. Again the study provided evidence of a unique brand of farming known as block farming in one of the two communities and how this is contributing to higher incomes compared to traditional methods of farming. Challenges that are faced by birds-eye chili farmers were also identified and the extents to which these challenges impact incomes accrued from the activity were explored as well. The findings of the study point to the fact that birds-eye chili cultivation delivers higher and more stable incomes to the farmers especially for farmers on the block farms. Relying on evidence from the study, a number of recommendations were made regarding opportunities for future studies as well as for shaping future policies.*

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### **List of Abbreviations and Acronyms**

AGR	Asian Green Revolution
BFP	Block Farm Programme
DFID	Department for International Development
FAO	Food and Agricultural Organisation
GDP	Gross Domestic Product
GEPC	Ghana Export Promotion Council
GHC	Ghana Cedi
IFAD	International Fund for Agricultural Development
LEAP	Livelihood Empowerment Against Poverty
MCC	Millennium Challenge Corporation
MDA	Municipal Director Agriculture
MiDA	Millennium Development Authority
MOFA	Ministry of Food and Agriculture
MP	Member of Parliament
NTEs	Non-Traditional Exports
SL	Sustainable Livelihood
SSA	sub-Saharan African

## CHAPTER ONE

### Introduction

This study investigated the impacts that the cultivation of chili, a non-traditional crop has on the income of farmers who grow them using two communities (Torkor and Kudzra) both located in the Kpando Municipality<sup>1</sup> of the Volta Region as a case study. The study limits its scope to the cultivation of birds-eye chili which has enjoyed acceptance among vegetable growers in the area since its introduction in the late 2000s.

Falling prices of traditional export crops have led policy makers especially in developing countries and their donor agencies to seek diversification in export crops production. Moreover, smallholder farmers are unsatisfied with the incomes they accrue from engaging in traditional agricultural activities on smallholder levels. This is evident in these rural farmers engaging in different forms of on-farm and off-farm activities to supplement the insufficient incomes generated from engaging in traditional agricultural activities. Diversification is a common characteristic associated with smallholder farming (Ellis 2000).

Available data show the production of fresh fruits and vegetables for export has increased in several sub-Saharan African (SSA) countries mainly to European markets (Takani 2004). Again, developing countries' combined share of non-traditional fruit and vegetable exports increased to 56 percent in 2001, assisted mainly by strong growth in vegetable's trade (Hallam et al. 2004). Ghana is no exception. The view held by the Government of Ghana is that export crop diversification is important in order to increase revenue from exports and also to improve the lives of the farmers who cultivate these crops. Subsequently, the government invests in the education of farmers and extends other forms of support to them to encourage them to venture into the cultivation of non-traditional crops.

These commodities are usually referred to as non-traditional export crops due to the relative recent nature of their export value as compared to traditional export crops such as cocoa, coffee and cotton. These investments led to a noticeable crop diversification as well as the introduction of other forms of contemporary agricultural activities such as fish farming, rabbit and grass-cutter<sup>2</sup> rearing and bee farming into the country's agricultural sector. In parts

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<sup>1</sup> In Ghana, many small districts with a collective population of more than 95,000 can be constituted into a Municipality. A Municipality could therefore not necessarily be 'urban' in Ghana.

<sup>2</sup> Grass-cutter refers to the *Greater Cane Rat* in the country of Ghana and other regions of West Africa. It is a delicacy among most Ghanaians.

of Ghana, the farming system has undergone a transition from established traditional-crop farming for urban markets to an intensive production of non-traditional crops for export. Crops such as papaya, pineapple, chili and mango are examples of non-traditional crops being cultivated for export in Ghana. It is a fact that the government is interested in the growth of her exports through these non-traditional crops and related activities, however, little is known about the impacts of these non-traditional agricultural products on farmers' income. Indeed previous studies (Little & Watts 1994, Kimenye 1995, Barrett & Browne 1996, Freidberg 1997, Barrett et al. 1999, Little & Dolan 2000, Dijkstra 2001, Killick 2001) have all focused on the role of smallholders in the development of non-traditional export crops in Africa. In this growing literature however, little attention has been paid to the impact of non-traditional crops on income levels of the smallholders who engage in their cultivation.

The two communities selected for this study have certain peculiar characteristics that make them suitable for the aims and objectives of the study. Both communities are rural in nature with a majority of the inhabitants relying on smallholder farming for survival. In addition to this, there has been the introduction of non-traditional crops into these communities for some time now with birds-eye chili being widely cultivated by many vegetable farmers either individually or through farmer based blocks. Again, these farmers were encouraged through well-structured investments and supported with seeds, credit facilities and promise of a ready market to venture into the cultivation of these crops. The questions that open up then is whether this new approach is the way forward and whether the farmers are feeling any impact on their incomes compared to their previous agricultural engagements. In addition, questions such as what factors affect rural farmers' decision to grow birds-eye chili and what problems and challenges they encounter in this endeavour are also points of focus in this study.

The use of *non-traditional* crops in this study is in line with Ghana's Ministry of Food and Agriculture (MoFA) reference to them as crops that are new or exotic to Ghana (not produced traditionally in Ghana) or crops that have been previously produced for local consumption but are now being exported to foreign markets in unprecedented volumes. For the purposes of this study, the concept of non-traditional crops will be limited to this definition.

It is worth noting that the two communities selected for the study are engaged in the cultivation of other non-traditional crops as well engaged in some non-traditional activities. Cultivation of cassava, maize, yam and rearing of domestic animals are common traditional agricultural activities engaged in by the people. Other non-traditional activities include bee

farming, fish farming and grass-cutter rearing. However, the scope of this study does not rope in these other activities since they are relatively recent and therefore might need some time for their impacts to be studied.

### **Research Objective**

The objective of this study is to identify the impact birds-eye chili cultivation has on farmers' income. In order to achieve this aim, the following issues were selected to address. These are:

- *To identify, from the farmers' perspective, the factors that determine their decision to grow birds-eye chili.*

This objective assesses from the farmers' perspective the reasons for their decision to grow birds-eye chili specifically. The purpose of this objective is to determine the cropping options available to the farmer and what factors influence this choice. It is important to know the issues that shape farmers adoption decisions in order to inform future policy plans in this regard. Again, identifying these factors will shed more light on the livelihood options available to the farmers vis-a-vis their incomes.

- *To identify, from the farmers' perspective, the problems they encounter in the entire business of growing birds-eye chili: pre-planting to post harvest.*

It is important to identify from the perspective of the farmers themselves the major problems they face in growing this crop, if they are able to overcome these problems and how they overcome them. Again, the impact these problems have on the incomes accrued from cultivation of the crop as well as on the overall benefits of cultivating the crop is of importance to the researcher.

- *To identify the overall effects of birds-eye chili cultivation on income levels of farmers compared to previous activities.*

This objective sums up the main purpose of conducting this research. It is worth noting that one of the major determinants of standard of living is income. The aim therefore is to determine the effect (positive or negative) of the cultivation of a non-traditional crop like birds-eye chili on the income levels of the farmers and whether this effect, if positive, is

making any meaningful difference in their lives. In order to appreciate the level of change in incomes, birds-eye chili cultivation will be compared to previous livelihood activities engaged in by the farmers.

### **Structure of the Thesis**

The rest of the thesis is structured as follows: The next chapter reviews relevant literature on the subject under study going beyond Ghana to cite examples and evidence of non-traditional crop cultivation in general and birds-eye chili cultivation in particular from other countries. Debates relating to the role of agriculture in poverty reduction are presented. In addition, the relationship between farming and livelihoods are discussed here. The focus is on birds-eye chili cultivation in Torkor and Kudzra, two communities in the Kpando Municipality of the Volta region of Ghana. The global demand and supply of vegetables in general is touched on and birds-eye chili in particular is brought into focus. Again the chapter presents the theoretical framework on which the study stands.

Chapter three outlines the research methods used for the study and provides justification for and significance of the use of such techniques. Issues relating to trustworthiness, limitations of the study and ethical concerns of the study are also discussed. Chapter four presents an analysis of data focusing on the impact of the cultivation of birds-eye chili on income levels of the farmers. Chapter five presents a summary of the findings of the study and offers recommendations for shaping policy, opportunities for future studies as well as a concluding statement.

## **CHAPTER TWO**

### **Literature Review and Theoretical Framework**

#### **Introduction**

This chapter presents relevant literature relating to the issue under study. It is divided into two main parts. The first part looks at the debates relating to farming and poverty reduction in SSA since poverty and incomes are two interrelated themes. The chapter also presents a brief history of the cultivation of non-traditional crops in SSA with a focus on Ghana. The second part is focused on chili cultivation in Ghana in general and specifically on birds-eye chili. This part also presents the conceptual frameworks on which the study stands.

#### **Agriculture and Poverty Reduction: the Debates**

A large majority of the poor live in the rural areas of the developing world. At the same time, poverty levels in these areas are the most severe. Poverty as a concept is not easy to define. The dominant Western definition since World War II has viewed poverty in monetary terms, using levels of income or consumption to measure it (Grusky & Kanbur 2006) and defining the poor by a headcount of those who fall below a given income/consumption level or poverty line (Lipton & Ravallion 1993).

The agricultural sector is a popular enterprise in SSA. It employs some 70 percent of the workforce and generates, on average, 30 percent of Africa's GDP (ECA 2007). Farming in SSA is predominantly a rural activity and is carried out on smallholder levels. While the economies and peoples of the SSA region are diversifying into a range of other activities, there are strong arguments that farming is likely to remain of central significance to incomes and livelihoods in the near future (Fafchamps et al. 2001).

There are differing opinions on the role agriculture plays in poverty reduction efforts especially in SSA. One group of scholars are of the opinion that although SSA has been relying on agriculture for decades with the hope of lifting her people from poverty, there is little positive results to show for these efforts and perhaps this is the time for SSA to look elsewhere for the solution to poverty in the region. Others argue that agriculture presents SSA with the best option to escape from poverty and there should be continuous efforts to develop the sector to meet this goal.

The focus of these two lines of arguments has concentrated on increasing yields of existing crops more than on a shift to new crops. These two different opinions are put in perspective



in the next section, first the arguments in support of increasing current crop yields and second the arguments against it. This study was conducted with my conviction that increasing yields is not the best way of attaining higher incomes for smallholders especially in SSA.

### **Agriculture and Poverty Reduction: the Optimists**

The role of agriculture in reducing poverty has been trumpeted by many authors such as Dorward et al. (2001) and Ravallion and Chen (2004). Apart from its potential benefits for rural people, agriculture has been linked to other sectors of a country's economy and regarded as important to generate overall growth and reduce overall poverty. The argument is that when agriculture grows it leads to overall economic growth which reduces rural and urban poverty.

Supporters of agriculture led growth argue that it plays an essential role in the early stages of growth. This is explained by Dorward (2003:7) as follows:

*'...Increasing agricultural productivity is essential first for capital investment in agriculture itself and then for the steady release of surplus capital and labour to other sectors of the economy. It is also the major source of export earnings and of food, plays a major role in keeping food prices down, and is the major source of domestic income and hence stimulus for demand for local goods and services.'*

Again, the Department for International Development (DFID) believes that agriculture should be placed at the heart of efforts to reduce poverty (DFID 2004). The DFID argues in response to those who are of the view that increasing agricultural yields cannot deliver growth argues that there is sufficient evidence which shows that increasing agricultural productivity has benefitted and will benefit millions of people through higher incomes, increased availability of cheaper and plentiful food and creating a pattern of development that is employment-intensive with benefits for both rural and urban populations. In addition to this, there are arguments that agricultural growth can be more effective in poverty alleviation compared to growth in secondary and tertiary sources of GDP (Ravallion & Chen 2004) and especially beneficial for the poorest households (Ligon & Sadoulet 2007).

How does agriculture do this? In the first place, it is worth noting that poor households tend to spend between 50 and 80 percent of their entire income on food (Nugent 2000). In a region such as SSA, these poor households are made up of many farmers. Increasing land and labour productivity which results in quick increases in agricultural output have made food cheaper

thereby benefiting both the urban and rural poor, who spend much of their income on food. An example is from Bangladesh where between 1980 and 2000 increased rice output led to the real wholesale price of rice in Dhaka's markets falling from 20 to 11 Taka per kg (\$0.25-0.14) bringing major benefits to poor consumers (Smith & Haddad 2002).

Secondly, available data on the proportion of people mainly dependent on agriculture for their income remains high, ranging from 45 percent in East and South East Asia to 55 percent in South Asia and 63 percent in SSA (FAOSTAT 2004). The argument therefore is that under the right conditions, increasing agricultural productivity has been noted to lead to increased incomes of both small and large farmers and generated employment opportunities for many. According to Lele and Agarwal (1989) and Lipton and Longhurst (1989), there is 'overwhelming evidence that higher agricultural productivity in Asia consistently raised farmers' income despite declining market prices resulting from increased output'. Small- and medium-sized farmers have not been excluded from these benefits.

Again, poverty reduction is more effective if livelihoods are built outside of agriculture as well. Particularly for rural areas where 70 percent of the world's poorest people live (Ravallion 2002) and non-farm economies already play a major role in people's livelihoods, this is important. Agricultural growth has a historical record of positively impacting poverty beyond agriculture-based livelihoods. According to DFID (2005), where agriculture has grown quickly, higher rural incomes and cheaper food have led to increased demand for goods and services produced outside agriculture. In view of these multiplier effects of agricultural growth on rural economies, poor countries have been able to diversify their economies to sectors where growth is generally faster and labour productivity and wages are higher. On the flipside, where agricultural productivity has grown slowly, particularly in SSA non-farm activities have also tended to grow slowly and to offer low wages (Haggblade et al. 2002).

Despite these benefits of agriculture growth to the poor, the optimists share in some of the views expressed by the sceptics. For instance, they acknowledge that some previous efforts to achieve growth through increasing yields in SSA have been disappointing where growth in agricultural output has barely kept pace with population. They again agree that productivity has stagnated in some places, slowing wider economic growth and exacerbating poverty with it. In the light of this, the optimists agree that it will be necessary to reverse this trend in order to reduce poverty.

There are therefore calls for a change in approach or at least a combination of increasing current crop yields in SSA with intensive crop diversification. The hope is that by encouraging smallholders in SSA to venture into the production of new crops, which are mostly non-traditional export crops, there will be varied options with regards poverty reduction efforts through agriculture which hitherto was more or less concentrated on increasing yields.

Despite challenges such as shortage of land and water and factors such as globalisation, climate change, disparities in global trading system, depressed commodity prices and HIV/AIDS the pro-agriculture advocates are optimist that under the right conditions and with some changes to the current status quo such as combining increasing yields with introduction of new crops, agricultural can still deliver the needed poverty reduction benefits for SSA as evident in some parts of the world.

### **Agriculture and Poverty Reduction in sub-Saharan Africa: a Fallacy?**

Historically, dual economy models inspired by Lewis (1954) which were also popular in development economics in the 1960s and the 1970s typically painted agriculture as a backward, subsistence sector. In this view, resources were to be taken from this unproductive agricultural sector to encourage the development of the more productive industrial sector. Much of early development economics literature was therefore understood as supporting an industrialization strategy, leading to, according to some authors, an urban bias in development planning (Lipton 1977) and fiscal and trade systems that systematically over-taxed agriculture (Krueger et al. 1988).

Again, there is a school of thought that suggests that at least for SSA a pro-agriculture strategy will not deliver the overall growth necessary for rapid poverty reduction. The argument is that SSA's agricultural development will not involve the majority of poor smallholders, but can only succeed among larger commercial farmers (Maxwell 2004). The extent to which poor people would gain from a pro-agriculture strategy is therefore questioned.

However, many arguments have been made in support of an agriculture-led poverty reduction effort in SSA. The basis of these arguments is that poverty in SSA can be broadly and significantly reduced by raising yields in small-farm agriculture. Until recently, the argument has been centred on raising yields especially from smallholder farming to lift people out of

poverty. Those in support of this position support their stand by arguing that a majority of the poor in SSA live in rural areas where farming is the mainstay and also where poverty is most severe. Again, they are of the view that the prevailing rural poverty in SSA is as a result of the failure to replicate the Asian Green Revolution (AGR) of the 1970s and that high agricultural yields will ultimately generate higher incomes for small-farm households itself. This line of argument concludes by suggesting that the high incomes accrued from increased yields will most likely be spent in the rural economy in which it is generated thereby creating a more vibrant rural economy. One important issue that the proponents of the agriculture-led pro-poor growth model put forward is the fact that using agriculture to reduce poverty is possible having in mind that there is a huge potential to raise yields in Africa through the application of new science and technology and that Africa currently holds the largest portion of the world's most arable agricultural lands.

Despite these, there are some authors who are of the view that the agriculture-led pro-poor growth model is flawed especially when it is applied to SSA. Ellis (2000) argues that if growth was to be achieved through increasing yields there must be some indications coming from SSA since there has been on-going efforts for more than 40 years with very little to show for in terms of positive results. Ellis is of the opinion that SSA was unable to replicate the successes of the AGR because of lack of government support mechanisms, price support and input subsidies, conditions that are still prevailing. Again, Ellis argues that economies of countries in SSA are relatively small and therefore increased yields will lead to surpluses. The bottom line of these arguments is that, increasing yields in itself will not deliver the growth that SSA needs.

The authors who reject the agriculture-led pro-poor growth model argue that agriculture has represented such a weak and unreliable livelihood platform for rural families in SSA as evident in their tendency to diversify into other activities. Indeed there are some who are urging for a future without agriculture as the most efficient path to development for Africa. There are also some macroeconomists who are of the opinion that resources are being wasted on slow growing agriculture and such resources must be channelled towards rapid economic growth to lift people out of poverty.

As stated earlier, the basic assumption for calls for SSA to take to agriculture as the path to reducing poverty in the region lies in the successes chalked by the AGR. However, there have been suggestions that SSA currently differs in many respects from AGR economies of the

1970s. In the first place, AGR economies were large, food deficit countries seeking to achieve food self-sufficiency (Ellis 2000). In addition to this, there were comprehensive agriculture support policies in places such as fertilizer subsidies and massive investment in agricultural infrastructure such as irrigation facilities borne entirely out of government purse at no cost to the farmers.

Presently, SSA is made up of some 50 small, open and weak economies. Coupled with this is the absence of effective state-led agriculture support policies, lack of proper infrastructure to support agriculture production, absence of price floors and ceilings for produce as well as the impact of globalisation resulting in international prices rapidly translating into the domestic sphere. Failed policy environment such as the failed Structural Adjustment Programmes of the 1980s also played a critical role in the failure of SSA to replicate the AGR of the 1970s.

Indeed some of the scholars in support of agriculture-led pro poor growth, Dorward et al. (2001), admits that reliance on pro-poor agricultural growth as the main weapon against rural poverty today may not be appropriate since the conditions such as irrigation, population density, human capital, infrastructure and the presence and intensity of conflicts faced by rural poor are more difficult than those that were faced during the green revolution period. The world is now facing a very rapid process of change across the globe, such as urbanization, the spread of HIV/AIDS, changing population structures, changing expectation among young rural people, the advent of information technology and biotechnology and globalization. Dorward et al. also included the effect of changes in policy amongst donors and government, such as market liberalization, structural adjustment, privatization, the increasing role of private sector and NGOs in development and the tighter fiscal regimes, as factors that make agriculture development becoming more challenging than ever before.

Poverty in SSA is largely a rural phenomenon with rural poverty levels considerably higher than urban levels. In addition to this is the fact that farming is mostly a rural, small-scale activity in SSA. The argument therefore is that it is unwise to 'trap' these people in rural areas by encouraging them to increase yields from agriculture in order to escape from poverty. One example of a country that has attempted to encourage people to stay in rural areas and engage in agriculture is Ethiopia. There has been a deliberate effort by the government of this country to keep people in rural areas and there has been a total neglect of urban growth and infrastructure. This has resulted in only some 17 percent of Ethiopia's 70

million plus people living in urban areas. Consequently, farm sizes begun shrinking due to high rural population and poverty levels also increased alongside.

In view of this, the suggestion put forward by those who reject the agriculture-led pro-poor growth model is that there should be a rapid transition of people from rural areas, where poverty levels are highest, to urban areas where poverty levels are comparatively lower. They argue that such a transition will lead to a reverse in declining farm sizes, an increase in cash circulation in rural areas, the provision of robust domestic market for farm output and pressure being taken off natural resources and that the assumption that poverty is best addressed in the area or sector within which it is most severe is a flawed assumption. In effect, they conclude that agriculture is not a reliable sector to base prosperity especially in small countries unless it is accompanied by non-agricultural development.

### **From Increasing Yields to Cultivation of New Crops**

As evident from the previous section, debates relating to the role that agriculture can play in improving living conditions of farmers has been centred on whether or not increasing yields from production of traditional crops is the solution. On one hand, I support those against the motion that higher yields will equal higher incomes and better standards of living for farmers while on the other hand I am sceptical about the suggestions put forward by the opponents of the motion (i.e. rapid rural-urban transition). Indeed this is one of the reasons for embarking on this study since I have a strong conviction that the introduction of new high value crops to smallholders has a higher potential of delivering higher incomes to them than the popular raising yields and rapid rural-urban transition discourses.

Perhaps the best group of people those in support of the increasing yields or rural-urban transition debates need to look at is smallholders themselves and whether or not they (smallholders) are convinced with this line of suggestion. For many smallholders in SSA, increased yields of present crops being cultivated will only result in surplus production given the absence of efficient storage, marketing and transportation facilities. It is therefore not surprising that the farmers themselves have begun initiating their own plans to better their agricultural incomes by shifting to cultivation of entirely new and high value export crops instead of continuing to aim at increasing yields of current crops. Again, rural dwellers in SSA are careful with rural-urban migration bearing in mind the numerous challenges that this poses to them in urban centres (Asase 2008).

It is evident, as discussed in subsequent sections that there is a general increase in the adoption, production and sale of new crops especially fruits and vegetables by many smallholders in SSA. This can be interpreted as a subtle message from the farmers of the failure of past efforts of agriculture-led poverty reduction strategies. Although there is a noticeable trend of a shift to the cultivation of new crops, there is little available literature on the impact this is having on the incomes of the farmers.

Braun et al. (1990) in their study on non-traditional crops and its impact on production, nutrition and incomes in Guatemala revealed that non-traditional export crops are substantially more profitable to farmers than traditional crops and that net returns per unit of land of vegetables are on average 15 times that of maize, the most important traditional crop of the region. Again, IFAD has recognised the increasing role of high value non-traditional crops in poverty reduction. IFAD points out that non-traditional crops represent a promising opportunity for reducing rural poverty because of their labour intensive nature, lower costs of cultivation, high economic returns per unit area compared to traditional crops and their potential to add value and create employment through processing and marketing (IFAD 2008). Non-traditional crops have the potential as a catalyst for rural development, increased incomes and livelihood improvements among poor communities and typically provide on-farm economic returns two to three times greater than the returns from basic food crops.

Admittedly, little literature exists on the introduction of new crops to smallholders in SSA and its impacts especially on their incomes. Nevertheless, limited studies that have been conducted point to potentials in this area of agriculture making it important for more studies to be conducted to look deeper into this development.

### **What are Non-Traditional Crops?**

Singh (2002) defines non-traditional crops as 'crops that are not part of the customary diet of the local population and grown primarily for their high cash values and export'. This definition is however not a universal one. In parts of the West, non-traditional crops are described as low acreage, niche crops such as ethnic fruits and vegetables, culinary and medicinal herbs and plants for industrial uses.

The official definition of non-traditional exports in general in Ghana, adopted in 1995, includes all merchandise exports except for cocoa beans, logs and lumber and mining products. Horticultural crops make up a major part of this classification. In addition to this,

the body responsible for the country's exports draws a unique distinction between traditional export goods and non-traditional export goods. Ghana's Export Promotion Council (GEPC) referring to the export and import Act 503 states that traditional export goods are those goods that are made up of cocoa beans, lumber and logs, unprocessed gold and other minerals and electricity, while all other goods not classified as traditional export goods under this schedule but can be exported is simply classified as non-traditional export goods (NTEs).

What is considered to be a non-traditional crop differs from region to region. In North America for instance, fibre hemp is a non-traditional crop as well as a variety of different types of shrubs, potted plants and leafy ornamentals. A non-traditional crop may be new to a region or simply new to the grower.

In Ghana, MoFA has an extensive list of crops considered to be non-traditional crops. These crops include fruits such as banana, mangoes and pawpaw in addition to vegetables such as carrots, cabbage and chilies. Some agricultural activities such as bee and fish farming and grass-cutter rearing are also identified as non-traditional by MoFA.

Many farmers especially limited resource and vulnerable farmers from SSA in order to diversify their agricultural production to increase their chances of earning higher incomes tend to expand their search through the cultivation of non-traditional crops. They view them as a more profitable enterprise and as a better means to diversify and reduce production risk (Weimar & Hallam 1988).

The next section will look at the growers of non-traditional crops and how they cultivate their crops.

### **Growing Non-Traditional Crops**

The producers of export crops can be grouped into three: Exporter owned or leased farms, large commercial farms and small farms. Fresh produce exports from Africa were historically grown on small farms. According to Harris (1992), about 72 percent of fresh produce exports from Kenya in 1992 were grown on small farms. Initially, demand for African fresh produce from Europe was only during periods that they cannot be grown in Europe. With time, Europeans expanded procurement year-round and increased the variety of fruits and vegetables purchased. Consequently, the demand for fresh produce increased and commercial farmers and export firms became interested in cultivation and export of fruits and vegetables. According to Dolan and Humphrey (2004), by 1998, four of the largest exporters in Kenya



were sourcing only 18 percent of their produce from small farms, while 42 percent came from large commercial farms and 40 percent from exporter owned or leased land.

*Exporter Owned or Leased Farms:* These farms are owned by export firms who seek to gain control of all operations on the export side of the supply chain and increase the profit margin exporters get from on-farm crop production. In addition, exporter owned or leased farms also make harvesting to value added processing an integrated operation and oversight on labour laws, pesticide regulations, and safety compliance is easier. The firms are also guaranteed continuity of supply and this reduces the risk of losing suppliers to competition since they grow the crops on their own farms.

*Large Commercial Farms:* Some exporters, especially large ones prefer to deal with commercial farms because they can supply different products, meet large volume requirement for export transactions and are managed professionally. Similarly to exporter owned or leased farms, large commercial farms are not very difficult to monitor in terms of their compliance with various regulations. Commercial farming in Ghana is gaining popularity due to the availability of large tracts of fertile lands at low costs, significant water resources for agricultural production, low labour costs for farm operations and a politically stable democratic environment.

*Small Farms:* The number of small farms producing crops for export has been steadily declining. Exporters find it convenient to deal with a few large commercial farms than with many smallholders. Variations in crop quality due to non-uniform agronomic practices from farm to farm, logistic problems of overseeing compliance with pesticide use, child labour and worker safety regulations and difficulty of communicating with large number of growers make small growers less attractive to exporters.

In Ghana, the situation is not very different. Majority of non-traditional crop producers' fall in the first two categories discussed above with slight variations. For example, with regards large commercial farms, the variation in this instance is that although some of the farms are owned entirely by an association or group of farmers or even by export firms, farming on the land is done on individually allocated plots. Out growing is also a common chili cultivation method in Ghana. Under a typical out-grower model, exporters purchase supplies of chili peppers from out-grower farmers who produce on their own land or lands leased by the exporter under contract for price, quantity, quality and other specifications. The exporter will contract to purchase the out-growers' crops subject to meeting predefined standards and

provides them with inputs such as seeds and fertilizers as well as technical assistance for the purpose of quality control.

There are also many smallholder farmers who grow non-traditional export crops on their individual farms in different locations. The benefits and limitations of these farming types with regards chili cultivation is discussed in chapter four. However, it is evident that the future of small farming of non-traditional crops is threatened. The paradox is that, most of the poorest farmers in SSA operate on small scale levels and these are the group of farmers the government of Ghana seeks to lift out of poverty by introducing them to the cultivation of non-traditional crops.

In view of this, foreign and domestic non-governmental agencies together with the government of Ghana have set up projects to bring more smallholders into export oriented crop production. However, to enable smallholders to make prudent decisions, they should be given full facts about the benefits and risks of export crop enterprises including the possibilities of average income in good growing seasons and amount of loss from crop failure, market price variability over time, marketing institutions and their weaknesses and strengths, higher input requirements and the need for credit and special production skills and quality control requirements. Evidence from different countries suggests that the income effects from diversification are positive and can help reduce income inequality among smallholders (Bouis & Haddad 1990, von Braun et al. 1991).

Chili is an example of a labour intensive cult crops that require staking and picking of individual pods and is therefore suitable for production by small growers. While large farms have to hire outside labour and supervise them, small farmers use family labour which is both low-cost and self-supervising (Collins 1995). Smallholders also compete favourably in organic crop production. For smallholder operations to be successful it is essential to have an adequate number of willing growers in close proximity. Farms should be located in areas with good road and transportation systems. Otherwise it becomes uneconomical to collect produce from the different farms and set up post-harvest processing centres.

Although this may be the ideal situation, there are many individual farmers who are interested in reaping the benefits of cultivating birds-eye chili but are unable to grow them in proximity to other similar farmers for many reasons. This research delved into the activities of these farmers as well to understand their motivations, challenges and benefits. The findings are discussed in subsequent chapters.

## **History of Non-Traditional Crops in sub-Saharan Africa**

Majority of the non-traditional crops in Africa are produced mainly for export to European markets. In the 1960s the Mediterranean fringe was the source of fruits and vegetables for European markets. This has shifted to Eastern and Southern Africa after the 1970s and more recently to Western Africa after the 1980s (Barrett & Browne 1996). Imports of fresh fruits and vegetables by European Union (EU) countries in the 1990's have been more than all other categories of agricultural products (Watts 1994). The reasons for this increase are varied. In the first place, demand for fresh fruits and vegetables especially during the winter season by European consumers keeps increasing. Again, the flight distance between Africa and Europe is relatively short and the routes are also well developed which makes it easier to deliver fresh fruits and vegetables to consumers. Another reason is the competitive prices offered by African farmers and suppliers mainly due to their low cost of production. Finally, recent policy shifts toward more liberalized and market-oriented development strategies in most African countries have also contributed to the growth of the non-traditional export sector in addition to some African governments determination to 'diversify their export base in order to remedy their vulnerable economies that are heavily dependent on a few traditional export crops' (Barrett & Browne 1996, Stevens & Kennan 2000).

A number of African countries have taken advantage of this opportunity by diversifying their agriculture into production of crops desired by the EU. South Africa, Cote d'Ivoire and Kenya are leaders in non-traditional crop export while Zambia and Zimbabwe have achieved rapid growth in their export recently (Singh 2002). Growth of Egyptian export of fresh vegetables has also been impressive.

Presently, vegetables commonly exported from Africa include asparagus, snow peas, fine beans, Brussels sprouts, round beans, carrots, baby corn, hard-shell garden peas, broccoli, chilies and globe artichoke. In addition to these is avocado, mango, passion fruit and pineapple which makes up the bulk of the fruit export. Kenya for instance is noted as a major exporter of many Asian vegetables to the United Kingdom. Recently, African countries have started shipping roses and some other flowers to the EU.

The future for non-traditional crop exports especially horticultural exports is promising for many SSA countries. Trade liberalization policy adopted by the EU was expected to bring more countries from SSA into the competition after 2008 (Stevens & Kennan 2000). Although fresh produce consumption in Europe is expected to grow at a relatively slow rate

because of limited population growth and the current high level of consumption the consumers, on the other hand, will increasingly look for more variety and hazard free (organic) produce. Products with quality characteristics such as fresh appearance, eating quality, little waste and positive health effects will be in demand (Smits 2000).

### **Non-Traditional Crops in Ghana**

In 1969 GEPC was established and tasked with working towards the promotion and development of non-traditional exports from the country. This decision was arrived at as a result of the realization by both Ghanaian and foreign economists that Ghana was too dependent on only cocoa exports and some other few traditional exports. It was feared that if the country continued being a single-crop economy, its economy would not flourish as expected nor keep pace with global trends. GEPC was therefore tasked to help spur the country's economy and help it meet the changing global economic trends.

Before the establishment of GEPC, Ghana's export crops over the previous half a century and even before then have been made up of cocoa and coffee which are the country's traditional exports. With the introduction of the Structural Adjustment Programmes in the 1980s, the governments of Ghana and her international donors have encouraged the development of the non-traditional export sector in order to promote diversification of the country's agricultural exports. This has led to a noticeable change in the non-traditional crops export sector. By the 1990s the country has experienced significant growth in export of tropical fruits and vegetables. In 1992 for instance, the horticultural sub-sector contributed \$6.7 million to the country's foreign exchange earnings. By 2001, just over a period of some 10 years, the contribution of this subsector grew nearly four-fold to \$26.8 million, accounting for 40 percent of total earnings accruing from non-traditional agricultural exports (GEMAP 2005). Ghana's major horticultural crops cultivated mainly for export are pineapple, cashew, papaya, banana, mango and vegetables such as chili, carrots and cabbage and to a small extent fresh cut flowers.

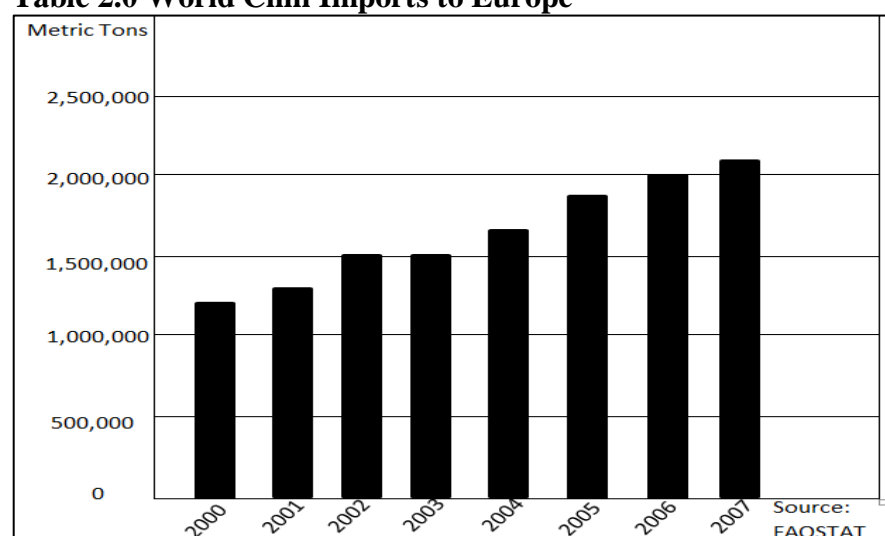
The Ministry of Trade and Industry of Ghana revealed in August 2013 comprehensive plans to increase the country's non-traditional export from the current export value of \$2.6 billion to \$5.0 billion dollars by 2017. The government hopes this will enhance the country's GDP and in effect increase national income. Again, the country also aims at generating considerable number of jobs and incomes, which will be translated into improved standard of living and welfare of the people to consolidate the middle-income status. International donors

such as the World Bank and the United States are also vigorously promoting horticulture to reduce Ghana's dependency on cocoa exports with promising results to show for these efforts. While the value of horticultural exports was \$9 million in 1994, it had increased to \$50 million in 2006.

### Global Demand and Supply of Chili

The world demand and supply of chili have been steadily increasing (Fig 2.0). Between 2000 and 2007 fresh chili demand increased on average 6 percent per year globally and 6 percent per year in Europe (FAOSTAT 2010). The target of Ghana has been mainly the European markets, particularly Germany and the UK, because of its proximity and resulting comparative advantage over other African countries in terms of air transportation costs.

**Table 2.0 World Chili Imports to Europe**



Production of chili on the other hand has grown on an average of 4 percent per year during the last 10 years led by a steady increase in global demand. China, Mexico and Turkey are the major producers of chili globally accounting for more than 70 percent of the world chili production (MDA 2002). Other leading global exporters include the Netherlands and Spain. Ghana ranks 11th place among the global chili producers, producing approximately 1 percent of total global production (FAOSTAT 2010).

Some European countries that are consumers of chili are themselves producers and exporters. However during the winter period there is a supply and demand gap since the European countries are unable to cultivate during this period. Again this is the time when demand and price for imported chili reach their peak in Europe. Countries in SSA such as Ghana can take advantage of this gap due to a favourable tropical climate throughout the year and supply to

Europe during its high demand winter season. The challenge during this period is that it corresponds with the dry season in Ghana and some other countries in SSA therefore irrigation is necessary to enable Ghanaian chili production to capitalize on the higher demand and prices during the European winter season.

### **Target Customers for Chili Exporters**

Globally, consumption of fruits, vegetables and poultry products are increasing due to their comparatively healthy nature as compared to red meats whose consumption is declining. For example, the consumption of fruits and vegetables in the USA has been projected to increase in the range of 1.5 to 1.8 percent per year over the next 20 years (Blaylock & Smallwood 1996). According to Blaylock and Smallwood, these increases and changes in food preference are as a result of a 1 percent per year increase in population, a 1 percent increase in real income as well as a growing number of persons over 45 years who tend to consume substantially more fruits and vegetables than younger persons. In addition to this, away-from-home consumption is also continually expanding.

The primary customer segment for chili in Europe is the Asian ethnic groups in these countries in addition to several immigrants especially from the West African region where chili peppers form an integral part of recipes. Consequently, several Ghanaian exporters have established strong business relationships with these markets in European cities. The good news for chili producers is that opportunities are not limited to these sectors alone, as more mainstream supermarkets now carry many varieties and choices of vegetables and chili from around the world as consumer preferences expand.

Currently, chili is exported in its fresh state from Ghana and is not packaged or processed in any way apart from being packed into paper boxes. However, consumers in European markets are more interested in properly packaged and cut or semi-processed chili. Certain customer segments are willing to pay more for visually appealing cut or semi-processed chili. Kenyan chili exporters in particular have begun to enter this market segment with opportunities open to other exporters who will be willing to invest in adding value to their chili. With regards to the Ghana, there is an opportunity for nucleus farmers to realize increased profits by moving up market with high quality Ghanaian chili.

### **Chili Cultivation in Ghana**

Chilies have always formed an integral part of diets in Ghana. A popular explanation for the preference of chili in diets is that apart from adding a unique taste to meals, hot chili makes

consumers sweat which is a biological cooling process for the human body especially in a hot tropical climate like that of Ghana. Although the cultivation of chili in Ghana has been ongoing for centuries, it was usually on very small scale levels for the personal consumption of households. Surpluses or bumper harvests are sold in village markets or transported to markets in bigger towns and cities.

The cultivation of chili require sunny, semi-tropic or tropical conditions in addition to rainfall of between 600 mm and 1,250 mm and Ghana presents excellent conditions for their cultivation. Except for the northern parts of the country two rainy seasons occur annually, from April to July and from September to November. In the north the rainy season begins in April and lasts until September. Annual rainfall ranges from about 1,100 mm (about 43 in) in the north to about 2,100 mm (about 83 in) in the southeast.

As stated earlier, demand for chili in Europe tend to peak during winter which coincides with the annual dry season in Ghana. However, most chili in Ghana is currently produced under rain-fed conditions with no or little irrigation. In view of this, there is a significant drop in the volume of production during the dry season when this should rather be the period for production to peak in order to take the advantage of increased demand from Europe during winter periods. Wosor and Nimoh (2012) estimate that Ghanaian chili farmers are currently producing at only 50 percent of attainable yields because of lack of irrigation as well as lack of improved inputs.

Traditionally, the use of hoes and cutlasses in a slash and burn fashion has been the popular farming method in Ghana. With regards chili, this method is widely used in its cultivation although there has been the introduction of tractors for tilling the land in preparation for planting. In general chili has a relatively quick growing and has a harvesting period of 3 to 4 months.

A variety of chili types are cultivated in Ghana. The commonest types are the very spicy pepper, a local landrace and popularly called birds-eye chili, the finger-like chili (*Capsicum frutescens*) and the heart-shaped (round) variety (*Capsicum chinense* Jacq.), referred to as 'Konfiem' or 'Kpakpo-shito' in local parlance. A hybrid of the *Capsicum frutescens* developed specifically for Ghanaian soils by plant researchers in the country's premier university, the University of Ghana and known as *Legon 18* is a popular chili exported from Ghana. It is designed to maintain freshness which enhances its exportability. *Legon 18* since

its introduction has been increasingly produced by local farmers especially through the Millennium Challenge Corporation (MCC) sponsored farms for export.

Again, the birds-eye chili has also seen increasing production in Ghana although it is more widely produced in India, Thailand, Vietnam and Malaysia. According to the FAO, birds-eye chili has a very high capsicum content of between 100,000 and 225,000 Scoville Heat Units. This makes it a premium chili and yields a high market price in export markets and experiences less price volatility.

### **The Potential for Chili Business in Ghana**

The business opportunity for chili in Ghana lies in establishing a nucleus farm operation with out-grower relationships to export *Legon 18* and birds-eye chili to European markets. Ghana has a unique advantage in chili production in many respects. There is readily available, inexpensive land with ample water, well-developed international and regional transportation networks in addition to the experienced and organized local farmers which are all important benefits to the potential chili investor.

Due to the labour intensive nature of chili cultivation sometimes requiring two to four times the labour needed for cereal cultivation, it requires a location where there is cheap and abundant labour and Ghana provides such opportunities. The official minimum wage in Ghana is GHC 5.24 (\$2.24) per day, although farm owners typically pay in the range of GHC 4 -6 per day or around GHC 150 (\$60) per month for agricultural labourers.

Again, Ghana is a transportation hub of West Africa to Europe. The country's international airport, the Kotoka International Airport is only a 6-hour flight time from most major European destinations. Nucleus farmers can take advantage of the system of major roadways between nucleus farm operations from as far as four hours from the airport. Air freight costs from Ghana are significantly lower than from other parts of Africa, providing Ghana with a competitive advantage compared to other vegetable and chili exporters such as Kenya and Uganda.

Due to the short distance between Ghana and European chili markets, many Ghanaian farmers and exporters do not use cold chain transportation or storage to preserve the quality of the chili. Yet, they are able to provide fresher chili peppers with a longer shelf life of one week than peppers from other countries, which usually have only a 3 day shelf life. Presently, a further boost is being given to vegetables and fruit exports from Ghana with a Millennium



Development Authority (MiDA) sponsored rehabilitating project of an existing cold storage at the Kotoka International Airport for the export of fresh fruits and vegetables.

With regards land acquisition for chili cultivation, Ghana boasts vast amounts of available, fertile land close to water resources. However, negotiating for land can be a bit daunting especially for foreign investors due to the traditional land tenure systems in place in agricultural areas. Usually price and terms are directly negotiated between investors and land owners who are mostly traditional rulers. MiDA and its partners provide critical assistance in locating attractive land and facilitating the process with local authorities.

Out-grower models are one of the greatest advantages of Ghana for chili production in the form a large number of farmers who already have experience in chili production and are willing to work with investors. Investors can leverage the land holdings and experience of these out-grower farmers by boosting their production output through introduction of productivity-enhancing inputs. Out-grower models are more beneficial to smallholder farmers compared to commercial farms engaging these farmers as labourers.

MiDA provides an estimated internal rate of returns and costs and returns portfolio for investors interested in chili cultivation in Ghana. According to the authority a 15 hectare nucleus farm operation with 50 out-grower farmers for the export of chili is forecasted to yield an internal rate of return (IRR) of 256 percent on projected annual revenue in the first year of \$9 million and net profit of \$4 million as operations scale up, with estimated revenue increasing to \$16 million and profit of \$11 million by the third year of operations. MiDA is optimistic that such a high IRR is achievable because chili production does not require a large initial capital expenditure. The nucleus farmer is projected to reach the break-even point within a year after starting the operation.

Ghana provides a favourable policy environment for chili production such as tax incentives, particularly the Export Free Zone and inexpensive operating costs such as labour, transportation and land leases.

### **Birds-Eye Chili**

Birds Eye chili (*Capsicum frutescence*) is one of the distinguished cultivar-groups of *Capsicum annum* (Grubben & Denton 2004). The others are sweet pepper, chili and aromatic pepper. Chili can be pungent and non-pungent. The non-pungent chili include sweet pepper which can be eaten raw or in salads but more commonly cooked, fried or processed together

with other foods. The pungent types of which birds-eye chili belongs to are consumed in small quantities. These types of chili are considered as condiment or spice for seasoning and stimulating appetite and are used in local medicine especially for herbal practitioners who prepare ointments for rheumatism and joint pains (Grubben & Denton 2004).

Grubben and Denton (2004) describe birds-eye chili as a slow-growing short-term perennial or sub-perennial shrub with their flowers usually in clusters of two or more, waxy greenish-white in colour and usually erect. It grows to a height of 4 feet and sometimes more with a productive life of up to three years. In addition to this, its fruits elongate, usually upright, small and narrow, up to 5cm x 1cm, green to cream and yellow when immature, orange to red when mature, smooth on the outside and extremely pungent.

African birds-eye chili is a relative of the Tabasco pepper and one of the hottest pepper varieties found globally. It is typically produced by smallholders, exported in its fresh state or dried by exporters and marketed through Asian specialty channels as an ingredient in curries and other dishes. Again, it can be used in organic pest control spray and in making industrial pepper sprays and tear gas. It is also processed into powder and oleoresins for food and pharmaceutical companies. Due to its use by pharmaceutical companies, there are strict demands for top quality and consisted birds-eye chili. African birds-eye chili is mainly produced in Malawi, South Africa, Ghana, Nigeria, Zimbabwe and Uganda. Although in Ghana chili production is to a large extent made up of the long chili some of which are exported, recent developments indicate that the birds-eye pepper is gaining export importance because there are developing niche markets in Europe for it. According to the Vegetable Growers Associations of Ghana, the birds-eye chili has a higher market value compared to the long chili (Bonsu et al. 2003).

A unique characteristic of the crop is that it is very draught resistant although excess rain can defoliate the crop and cause rotting and extreme water deficits can stunt growth and cause flower abortion and fruit drops. Ideally, the crop should be grown at an area near a water source, an area protected from animals and if possible an un-farmed area. Birds-eye chili is ready for first picking between two and a half to three months after planting. Harvesting continues for between three to four months. Continuous, prompt and complete picking is important for optimized production of the chili while poor harvesting can reduce yields by as much as 50 percent.

### **Birds-Eye Chili Cultivation in Ghana**

Through Millennium Challenge Corporation (MCC) sponsored projects, birds-eye chili cultivation in Ghana is gaining tremendous popularity among stallholders especially. Through funding from the MCC, the crop has become a profitable export commodity for the farmers. It is nick-named '*Green Gold*' by some smallholders.

One such project by the MCC launched in 2012 is a five year \$547 million compact with the government of Ghana which is targeted at '...creating more than 1,200 farmer based organizations (FBOs), training more than 66,000 farmers in commercial agriculture, enhancing rural credit and banking services and constructing new roads and post-harvest facilities' (MCC 2012). The investments are designed to generate economic growth and make Ghanaian agriculture more productive, including boosting the production of high-value exports such as birds-eye chili.

One of the farms that received funding from MCC is included in this study on the impact of birds-eye chili cultivation on income levels of farmers. Torkor farm, located on the east banks of Lake Volta, received MCC-funded training and has already begun capitalizing on the export market. Prior to this support, this 110-member group planted a variety of crops for sale in local markets but it did not grow export-quality chili. Since 2009, the organization has expanded production and started growing and exporting birds-eye chili. In their first two chili harvest seasons, the farm cultivated nearly 29 metric tons of export-quality peppers from just 3 hectares. The organisation has since expanded production of bird's eye chili which is sold to international exporters.

Ghana enjoys a comparative advantage over many African countries in terms of travel distance to and frequency of flights to Europe. This has positioned Ghana among the top five exporters of chili to the European Union. For the Torkor farmers and others like them, the formation of an FBO and the cultivation of birds-eye chili represent a new farming model. Buyers from Accra, the national capital now travel to the farm and pay cash at export-commodity values. For the farmers, the 'cash on farm' approach provides a steadier income than competing for sales on volatile local markets.

### **Smallholder Farming and Livelihoods in sub-Saharan Africa**

Millions of farmers in developing countries including majority of farmers in SSA depend on farming not just as an occupation but as the only means of survival. A paper prepared by the

All Party Parliamentary Group on Agriculture and Food for Development<sup>3</sup>, UK (APPG 2010) states that in 2010, over two billion people depended upon some 500 million smallholder farmers to meet their food need. Smallholder farmers form the largest group of farmers in the world and are the key drivers of food security. Again, the International Assessment of Agricultural Knowledge, Science and Technology for Development, points out that over 60 percent of the population of SSA depends on agriculture for their livelihood and agriculture accounted for 29 percent of GDP on average between 1998-2000 (IAAKSTD 2009).

There is a direct link between agriculture and livelihood strategies' especially in rural areas in SSA. In some African countries between 65 percent to as high as 85 percent of the population depend on small or micro-scale farming as their primary source of livelihood (Hazel et al. 1999). The vast majority of these people are smallholders although a few are made up of pastoralists and the landless. These smallholders rely on growing crops or keeping livestock on small plots of land to make a living, a practice that is both precarious and insecure. Small farmers are one of the most disadvantaged and vulnerable groups in the developing world. 'Half of the world's undernourished people, three-quarters of Africa's malnourished children and the majority of people living in absolute poverty depend on small farms' (Hazel et al. 2007).

What compounds this situation is the fact that these farmers are deeply vulnerable to climate and economic shocks due to lack of access to power, assets and markets. Despite these challenges, there are many arguments in support of the suggestion that small farms have the best positive outcomes on livelihoods especially on rural livelihoods in SSA. Hazell et al. (2007) argue that if the United Nations Millennium Development Goals for poverty and hunger are to be achieved, governments and donors need to shift their attention to developing agriculture in general and strengthening small farms in particular. One example of research that supports this line of argument comes from Hazell et al. (1999) whose research concluded that drawing on evidence from small farms across the world, small multi-crop farms are more efficient than large mono-crop farms in providing better and more stable incomes for farmers. Under the right conditions, small farmers can produce between two and ten times more per unit of land than large estates.

The situation in Ghana is no different. Ghanaian agriculture is largely dominated by smallholders who grow crops such as cocoa, maize, plantain and cassava on small farms.

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<sup>3</sup> [http://www.agdevco.com/sysimages/appg\\_submission.pdf](http://www.agdevco.com/sysimages/appg_submission.pdf)

More than 70 percent of Ghanaian farms stand at 3 hectares or smaller in size (Chamberlin 2007). Smallholders in Ghana, just like in other parts of SSA have certain characteristics that distinguish them from other farmers such as commercial or large scale farmers. They are resource poor: having limited access to capital (natural, social and financial), are highly vulnerable to risks and have low market orientation.

### **Theoretical Framework**

From the onset, it was clear that some farmers in the study area have begun shifting to cultivation of new crops mainly for export as opposed to previous efforts to increase yields from traditional crops. However, the reasons for this shift, the problems that are faced with in this new endeavour, as well as its impact on the income of farmers were not clear.

Over the past 20 years, theories on Sustainable Livelihood (SL) have become popular in light of the debate over how to best address the complexities of rural economies in a more holistic manner especially by taking into account how the rural populace makes socio-economic decisions (Doward et al. 2002). Over this period, SL theories have effectively shifted the focus of development policies from relying on traditional sectorial initiatives to encouraging the appreciation of asset holdings and livelihood strategies in addressing poverty issues in the rural sector (Scoones 1998, Castro 2002).

A modified version of a sustainable livelihood framework was adopted for this study, the reason being that analysis of livelihoods using this framework is usually done on entire households. However, the level of analysis for this study was done on the individual rather than household levels. The focus was on the factors that are most relevant to the farmers' livelihoods and the relationship between these factors. In view of this, five major assets that influence livelihoods were identified and analysed vis-à-vis birds-eye chili cultivation.

These are:

1. Human Capital
2. Financial Capital
3. Natural Capital
4. Social Capital and
5. Physical Capital.

Within the larger SL framework, *livelihood strategies* refer to the nature of the economic activity the household or individual is involved in. Ideally, livelihood strategies are supposed

to generate higher or more incomes, increase well-being, reduce vulnerability, improve food security and sustain the use of natural resources.

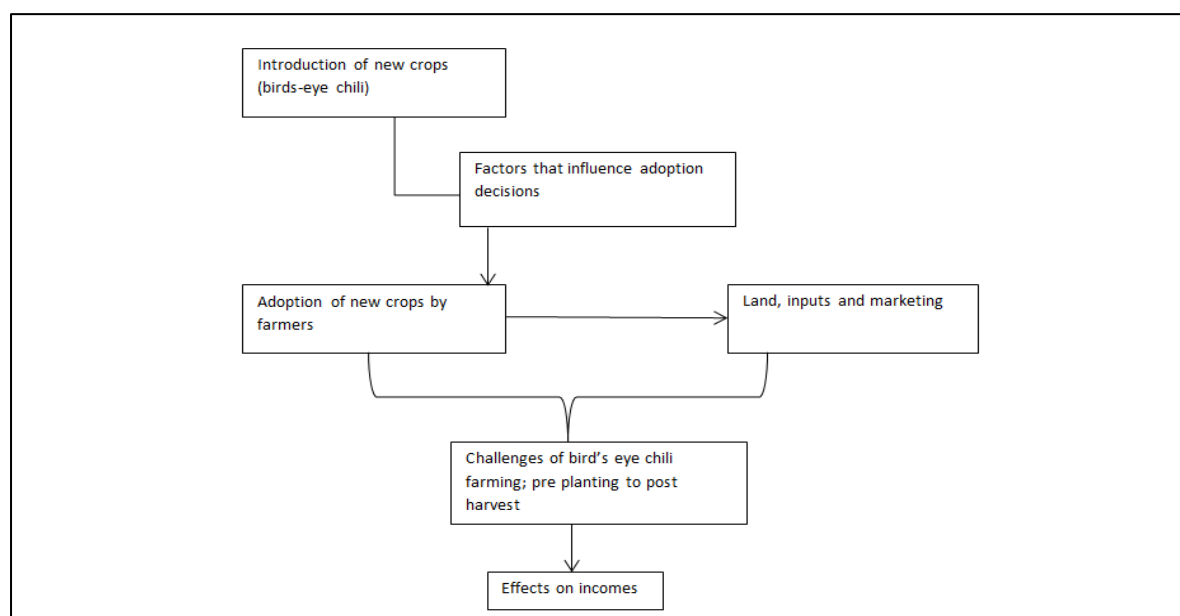
The five capitals specified above are very relevant in the rural context. Individuals or an entire rural households' ability to form a livelihood is affected by limited access to resources and by the various institutions affecting how livelihood strategies are applied. Thus, rural dwellers have to rely on the assets in their current possession and employ strategies with their endowments to survive. The various capitals have an influence on a household or individuals ability to successfully pursue livelihood strategies.

In addition to this, diversification of sources of income is natural and necessary behaviour for many rural dwellers. The motives for diversification may vary from person to person or from household to household, nevertheless the basic rationale is primarily to accumulate assets, reduce financial risk, maintain financial liquidity and secure a consistent flow of income in response to seasonal changes and other shocks (Ellis 1998, Unni 1998). Ellis (1998) defines *livelihood diversification* as 'the process by which rural households construct a diverse portfolio of activities and social support capabilities in their struggle for survival and in order to improve their standards of living through accumulation of assets' (p 5).

Rural livelihood diversification comes in different forms, both on and off-farm. On-farm diversification involves rural households either cultivating a mix of crops or shifting from the cultivation of one crop to an entirely new crop. I focused on the introduction of birds-eye chili into the study area to assess its effects on the incomes of the farmers who have either diversified into its cultivation or have shifted to it from the cultivation of other crops or engaging in other rural activities.

It is evident that the various livelihood assets, new crop adoption decisions and the challenges encountered from pre planting to post harvest period of the crop all affect incomes that are accrued from the activity. A simplified overview of the relationships is provided in Fig 3.0. Although this figure does not depict the complex dynamics involved it provides an overview of the steps of analysis.

**Fig 3.0 – Flow of Analysis for Evaluation of Birds-Eye Chili Cultivation Effects on Farmers' Income.**



**Source: Author**

When a new crop is introduced to smallholder farmers many factors come into play in influencing acceptance and adoption decisions. Land, inputs, marketing and social norms all play vital roles in this regard. For farmers who are do not are unable to adopt a new crop for reasons discussed later in this thesis, analysing the impacts of such a crop is obviously not a possibility. However, it is possible to evaluate the impact of not adopting such a crop for cultivation. The scope of this study did not cover such an evaluation. Farmers that adopt a new crop and go on to cultivate it are faced with challenges, from pre-planting to post harvest periods of the crop. These challenges ultimately have different levels of impact on incomes that are eventually accrued from the cultivation of such a crop.

With regards the livelihood capitals, *human capital* represents the ‘skills, knowledge, ability to labour and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives’ (Nguyen et al. 2006). According to DFID (1999) human capital at the household level is a factor of the amount and quality of labour available and this varies according to household size, skill levels, leadership potential, health status and so forth. From an agricultural based economy perspective illness, migration and death from HIV/AIDS and malaria can greatly reduce agricultural productivity and devastate livelihoods in rural SSA.

*Physical capital* as defined by DFID<sup>4</sup> (1999) refers to ‘the basic infrastructure and producer goods needed to support livelihoods. Infrastructure consists of changes to the physical environment that help people to meet their basic needs and to be more productive and producer goods are the tools and equipment that people use to function more productively’. The essential infrastructure which is necessary for sustainable livelihoods includes affordable transport, proper road network, secure shelter, adequate clean water supply and sanitation, affordable energy and access to information.

Many participatory poverty assessments have found that a lack of infrastructure is often considered by people to be a core dimension of poverty (May 1998, Nayaran 2000). Without access to services such as water and energy for instance, this may lead to human health deteriorating which in effect undermines human capital resulting in longer periods being spent in non-productive activities, such as the collection of water and fuel wood. Poor infrastructure has negative influences on education, access to health services and income generation. Again, poor or non-existent transport infrastructure for example will result in fertilisers not distributed effectively, agricultural yields remain low and it becomes difficult and expensive to transport limited harvest to the market.

*Financial capital* refers to the financial resources that people use to achieve their livelihood objectives. It captures an important livelihood building block, namely the availability of cash or its equivalent that enables people to adopt different livelihood strategies. Two main sources of financial capital can be identified. These are available stocks and regular inflows of money. Available stocks in the form of savings are the preferred type of financial capital because they do not have liabilities attached and usually do not entail reliance on others. They can be held in several forms: Cash, bank deposits or liquid assets such as livestock and jewellery. Financial resources can also be obtained through credit-providing institutions. Regular inflows of money may include earned income and other types of inflows such as pensions or other transfers from the state (for example LEAP in Ghana, *Oportunidades* in Mexico) and remittances.

*Social capital* is identified as one of the key resources on which people draw in constructing their livelihood portfolios. Just like any other type of capital, social capital can be valued as a good in itself. It can make a particularly important contribution to peoples’ sense of well-being through identity, honour and belonging. Two types of social capital can be identified.

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<sup>4</sup> DFID Sustainable Livelihoods Guidance Sheets.



Uphoff (1996) refers to the first as structural social capital which are relatively objective and externally observable social structures such as networks, associations and institutions and the rules and procedures they embody. Water user committees and neighbourhood associations are examples of structural social capital. The second form known as cognitive social capital comprises more subjective and intangible elements such as generally accepted attitudes and norms of behaviour, shared values, reciprocity and trust.

*Natural capital* is the term used for the natural resource stocks from which resource flows and services such as nutrient cycling, erosion protection and mulching which are useful for livelihoods are derived. There is a wide variation in the resources that make up natural capital, from intangible public goods such as the atmosphere and biodiversity to divisible assets used directly for production (trees, land, water bodies).

A close relationship exists between natural capital and the vulnerability context. Fires that destroy forests, floods and earthquakes that destroy agricultural land and many of the shocks that devastate the livelihoods of the poor are themselves natural processes that destroy natural capital. Particularly to rural dwellers, natural capital is very important because they derive all or part of their livelihoods from natural resource-based activities such as farming, fishing, gathering in forests and mineral extraction.

## **Summary**

This chapter reviewed relevant literature relating to the topic of the research. It went on to dwell on the theoretical framework within which livelihoods can be analyzed. Reviewing literature on rural livelihoods revealed that the sustainable livelihood approach is the current most popular approach for the analysis of rural livelihoods. Subsequently, the components of the SLF which were deemed most relevant to answering the research questions posed by this study were selected to form a modified version of the framework. The various components of this model were discussed in detail as well.

## **CHAPTER THREE**

### **Methods**

#### **Introduction**

I opted to make use of the research method that describes and assesses the interrelations among variables as they occur in their natural setting for my study. This meant that I have to employ a non-experimental research design to meet my objectives. Again, Kothari (2004) explains that qualitative research is suitable for the study of human behaviour, therefore, I think it will aid me to identify those factors that influence people's decision to grow chili within the study area.

Data for my study was collected from primary sources, directly from the farmers within the study area who are engaged in the activities of interest to me. I complimented this with data from other major stakeholders who are directly or indirectly involved in these activities. In this case I collected information from the Municipal Director of Agriculture (MDA) and the Member of Parliament (MP) for the Kpando Constituency who represents the people of the study area in Ghana's legislative body. In addition, I relied on secondary sources such as publications, reports and articles to complete my set of sources of data.

As a result of limiting my study to one crop, I decided to purposively select my informants. This involved initial use of the criterion sampling, i.e. farmers who grow birds-eye chili and subsequently choosing informants from this group. Informants were selected based on their unique characteristic and on how I believe their input will help me to answer the questions posed by the study.

I used interviewing as a technique for extracting data on the field. Since I consider myself a novice when it comes to qualitative interviewing methods, I made use of a semi-structured interview guide in order to take advantage of the flexibility that comes with it. Interviews were recorded on an audio tape recorder. It came with its own complexities that will be mentioned later in this chapter.

The rest of this chapter will be as follows: selecting informants, field relations, the interview process, reliability and validity, ethical issues and summary.

## **Selecting Informants**

According to Bradshaw and Stratford (2010), conducting in-depth interviews with a small number of 'right' people will provide significant insights into the research issue. In addition to this, the more focused a researchers subject of interest is, the more certain it is for him/her to know who he/she wants to involve and why.

It is common in both qualitative and quantitative research to have a sample or subgroup of people that are linked to the case that is being studied. Marshall and Rossman (2011) argue that relevant sampling decisions must be made from the research objective in order to achieve the 'soundness' that is required in research. Jackson (2001) justifies the use of samples in research arguing that time and resource limitations might not make it possible for the entire population to be studied.

Preliminary investigations revealed that there are two main communities within the study area growing chili which is of interest to me. I would have selected one out of these two communities to focus my study on however I got interested in studying both communities because one community had the chili farmers practicing the block farming method on land communally acquired whereas the other had the farmers growing the vegetable in different locations on individually acquired lands.

I decided to select a sample from the population of birds-eye chili growers, who became the final focus of my study. The size of this sample group was not a major issue of concern to me. Indeed, Bradshaw and Stratford (2010) made it clear that due to the representative nature of studies using quantitative methods, the size of a sample group becomes more relevant in such studies as compared to qualitative methods. I sought instead to concentrate on the richness of the data that I will collect rather than on sheer numbers.

## **Field Relations**

I arrived in my study area on the 8th of July, 2013. I had arranged with my research assistant to join me on that day but disruptions in travel arrangements did not make that possible until later that week. My research assistant is a childhood friend and also a Masters in Development Studies student in a university in Ghana. He plans to conduct research in the same study area on food security. Indeed, we had worked together twice in that same study area on our bachelor's degree thesis. He offered to assist me and I agreed since we are both familiar with the study area and also it will enable him to prepare for his own data collection

which will be in that same area. Besides, I hoped to enjoy my research and having my childhood friend with me is a plus.

My first contact was with the MP for the area with whom I had scheduled a meeting before arriving in Ghana. I consider her to be a major gatekeeper whose endorsement of the study will aid me in collecting data. After re-stating the purpose and objectives of the study I asked her permission to conduct research in her constituency. She approved.

She was the first key informant I interviewed. Admittedly, it was not the best of interviews. I had not built my confidence for recorded interviews yet and the power relationship in this case was not in my favour. Also, because I had already sent her a copy of my question guide, she lumped up many answers into one making me lose track of the interview guide. Subsequently, I had to make a follow-up interview to correct my earlier lapse. The lesson is learnt and next time I will prefer to have interviews with key informants in the middle of data collection or towards the end when I am certain I have developed confidence and in control of the interviews. Subsequently, I scheduled my next interview with a key informant towards the middle of my data collection. Apart from building my confidence before meeting the next key informant, I had noted some issues from the interview of the farmers that I needed clarification from the key informant.

Some 240 vegetable farmers can be found in the study area, with the number increasing every month, according to agriculture officials in the municipality. Two communities (Torkor and Kudzra) were identified as the main growers of the chili. I did not have in mind any specific number of farmers to interview but rather to conduct interviews and follow up interviews until I reach a saturation point: the point where I am certain that I have exhausted the issues I wanted to address.

In all, I conducted 23 formal interviews with chili farmers in the two communities (Table 3.0) as well as a number of informal interviews in the form of chats with other chili farmers and other people in the community. These conversations usually centred on why some farmers are not willing or unable to engage in the cultivation of chili and what noticeable differences in quality of life have they have seen since the introduction of non-traditional cops into the area. I took notes on about 15 of such informal chats in my fieldwork diary and it is worthy to point out that these formed an important part of my presentation of analysis.

10 farmers were interviewed in Torkor where the farmers grew their crops on communally acquired lands whereas 13 farmers were interviewed in Kudzra where individual farmers grew their own crops on private lands. In addition to these, 2 key informants were interviewed as well. Out of this number of farmers there were 9 male farmers and 14 female with the 2 key informants also females.

The first key informant is the MDA who is responsible for all agriculture related activities in the area. Among other things, she is responsible for ensuring food security in the area and helping farmers to improve upon their living conditions through proper education, sensitisation programmes and implementing policies and programs that are sent from the central government. She is also in direct contact with the farmers and receives important feedbacks from them. I regard her as an important gatekeeper.

The second key informant is the MP for the Kpando Constituency under which the study area falls. The MP is the elected representative of the people of the study area in Ghana's legislative arm of the state. She has oversight responsibility of all policies and programs from the central government and she is the political head of the area. The MP is an important gatekeeper who is respected by the people of the study area and is privy to important information regarding agriculture in the area since the constituency is mainly reliant on agriculture. The characteristics of the informants for my formal interviews are summarised in Table 3.0.

**Table 3.0. Break-Down of Informants.**

DESCRIPTION	MALE	FEMALE	TOTAL
CHILI FARMERS KUDZRA	4	6	<b>10</b>
CHILI FARMERS TORKOR	5	8	<b>13</b>
<b>TOTAL</b>	<b>9</b>	<b>14</b>	<b>23</b>

A combination of luck and perfect timing for data collection helped me to overcome the cumbersome work of locating the chili growers in the remote communities. The MDA had informed me that she will be meeting all the farmers together with some people who wanted to introduce new vegetables and fruits to them. Since having all the farmers together will be easier I agreed to use that opportunity to meet my informants.

Meeting almost my entire target population from which I drew my sample from in the first community had its peculiar benefits and limitations. In the first place, I saved much time in individually locating and explaining the purpose of my study to each informant since I was introduced to the crowd and I informed them my research, how I will do it and their rights as well. Again, because I came with the MDA I sensed a high level of acceptance from the farmers. I further exploited this to my advantage when I introduced myself by mentioning that my father was a priest in charge of the Presbyterian Church in the municipality until he was transferred recently. Nods and sounds of approval was the response. I had successfully established a connection and some rapport between myself and my potential informants. The gathering also afforded me the opportunity to have some sought of mini focus group discussion. The meetings were used to introduce new non-traditional vegetables to the farmers and to discuss the challenges and problems the vegetable farmers face in cultivating crops that were introduced earlier.

Despite these benefits, there were challenges with regards having my informants gathered at one venue. The first challenge was with sampling my informants. It took quite some time and effort to separate the chili growers from the rest of the farmers. Out of curiosity, some farmers who were not chili growers sneaked into the group of chili farmers. I proceeded to interview farmers I believe will aid me in understanding my topic. These farmers were selected based on their unique characteristics such as gender and age. Conspicuously missing were young farmers, an issue the MDA will express concern about later in the study. There were some protests since the farmers that were not selected questioned why their views will not be sought. I had to explain that in as much as I will like to seek each and every farmers views, I am constraint by time and resources. In addition, I had my assistant organise some sought of informal interviews for those who missed the selection. The conversations my assistant had with the other farmers was very valuable in the end.

It was easier to locate block farmers from Torkor in subsequent interviews since they all farmed at one location. All I had to do was to go to the farm early in the morning and interview the farmers when they show up. However, I didn't have that luxury with farmers from Kudzra. It was more difficult locating farmers from this community since they had their farms in different and scattered locations.

## **The Interview Process**

Dunn (2010) describes interviews as bringing people 'into' the research process. In human geography, interviews go beyond just having a chat, it is having a conversation with a purpose. Interviewing as a data collection tool has a host of strengths. According to Minichiello et al. (1995), researchers use interviews for 4 main reasons which are to fill gaps in knowledge that other methods such as observation may not be able to do, to investigate complex behaviours and what motivates such behaviour, to collect a diversity of opinions, meanings and experiences and as a way of showing respect for and empowering the people who provide as researchers with data.

Again, 3 major forms of interviewing can be identified: Structured, semi-structured and unstructured. The semi-structured form of interviewing was used to collect data from primary sources in this study. This method can be placed in the middle of continuum with structured interviewing at one end and unstructured interviewing at the other. It was selected as the most appropriate interviewing form for this study for many reasons. The most important reason was that it offers the interviewer flexibility in asking questions and it is most appropriate for less experienced researchers.

Every interview in qualitative research is unique in its own way. Interviewing presents the researcher with an exciting but challenging way of getting the needed data for his study. For this research, an interview guide was used which had a list of general issues to be covered by the interview as well as some questions. Interviews were conducted between July and August in the study area. It afforded me the wonderful experience of talking to people about an issue I am interested in and which is important to them as well. I relied on my previous relationship with the major gatekeepers to gain a relatively easy access to the informants. All the formal interviews were recorded on tape for transcription and analysis.

Conducting these interviews came with some challenges on the first day. For example, the benefit of having the informants gathered at one location posed problems to conducting recorded interviews. In the first place, it was difficult to prevent other people from listening in and offering answers to informants. On some occasions, excessive chattering among the observers meant the interview had to be moved to another location. Again, selected informants got impatient or were in a hurry to leave for their farms since the meetings which I took advantage of to meet them were conducted very early in the morning. Subsequently, I developed a strategy of walking the farmers to their farms while interviewing them and then

go on to interview the other farmers. This worked for chili farmers on block farms since I was able to move from one farm to another to conduct the interviews with them on the farm.

Finding the different farms of the chili farmers who farm on their own lands at different locations was more challenging. I developed a host of methods to overcome this challenge. These include arriving earlier at the meeting venue to have a couple of interviews before the officials from the agriculture department arrived, scheduling interviews with my selected informants for the evening when they returned from their farms and weekends and asking for directions to their farms or homes to interview them there.

Minichiello et al. (1995) advice that achieving and maintaining rapport is critical to the success of an interview. They go on to say that rapport is particularly important if repeat sessions with informants are planned. Building rapport was not too much of a challenge in my research. I was introduced by gatekeepers the farmers trusted and worked with, I speak their local language very well, my family had stayed in the nearby community when my father worked in the district and therefore I was able to relate with them more easily and also my field assistant was familiar with the area and could speak the local language as well. I had many follow up interviews to clarify a point or seek answers to new questions.

On the average, each interview lasted between 10-15 minutes. I concentrated on asking the questions while my assistant took some notes. I observed that the presence of a tape recorder caused excitement instead of apprehension. The farmers were excited to have their voices on tape and some of them asked me to re-play their voices for them to hear after the interviews.

## **Observation**

Some researchers tend to downplay the importance of observation in research. For example, Fyfe (1992) regarded observation as ‘inherently easy’ and ‘of limited value’, wrongly so in my opinion. Consequently, some social science researchers tend to give it less attention as compared to other methods such as interviewing. Kearns and Collins (2005) summarized the purposes of observation into three: Counting, complementing and contextualizing.

The reason for making use of observation in my research was mainly directed at achieving the second purpose stated above: complementing. The aim here is to gather complementary evidence or additional descriptive information before, during or after making use of other forms of data collection. Kearns and Collins (2005), describes this as ‘...gaining added value



from time in the field and to provide a descriptive compliment to more controlled and formalised methods such as interviewing’.

During my research, I tend to stroll through the communities to observe any new developments. As stated earlier, I had been familiar with the area before chili became a popular crop. My aim therefore was to look out for things such as the type of buildings that are springing up now (whether concrete or still mud), the presence of electricity in homes, the new businesses that are opening up (e.g. shops that sell agro-chemicals), the nature of the roads and the means of transportation now (taxis replace old buses with a communities improved quality of life) and the general quality of life of the people. Again, when I visit the homes of chili farmers to conduct interviews, I use the opportunity to observe their homes, the kinds of appliances they have and how they live generally.

This method of observation is what Ponga (1998) described as observer-as-participant. Adopting this aided my research greatly by providing me with much needed information to complement my formal and informal interviews.

### **Reliability and Validity**

Reliability refers to the extent to which a method of data collection yields consistent and reproducible results when used in similar circumstances by different researchers or at different times and closely related to this is validity which refers to the truthfulness or accuracy of data compared with acceptable criteria, according to Dowling (2010).

Bailey et al. (1999) suggest that due to the interpretative nature of qualitative research, there is a lot of debate relating to how validly and authentically qualitative research accounts might be assessed. It is important for a researcher to ensure that other people who use his/her research are assured and have reason to believe that it was conducted in a dependable way.

In order for a study to be considered valid and reliable a researcher must ensure rigour: Accuracy, exactitude and trustworthiness. Rigour was ensured throughout my entire research process. Following the advice of Lincoln and Guba (1985) and Baxter and Eyles (1999), I formulated my strategies for ensuring trustworthiness in the early stages of my research design. Also I applied these strategies throughout the entire process of my study. The strategies here include making my work open to my colleagues, those I am researching as well as other people who might be interested in it for scrutiny. Again I documented each step of my research carefully so as to allow for checking and cross checking by interpretive

communities. Just as Fielding (1999) puts it: ‘...we should focus on producing analysis that are as open to scrutiny as possible’ (p 256).

In addition it is important to incorporate these four major types of triangulation as outlined by Denzin (1978) and Baxte and Eyles (1997) in our work as researchers. These are multiple sources, methods, investigators and theories. Following from this a number of strategies were employed in this research. In the first place, I ensured that I checked my sources of data against other sources. During interviews on the field, I ensured the credibility of my sources by making follow up interviews which mostly took the form of informal interviews or mere conversations to cross check information I had earlier elicited through the formal interviews. I was under the impression that the formal (recorded) nature of the initial interviews might influence the kind of responses I got. However, I was pleased to notice a similar trend in the responses I got from the formal interviews compared to the informal interviews. Again street conversations with people who are not growing chili gave me a fair assessment of how they perceive the life of chili farmers.

Secondly, I made conscious efforts to check my processes and interpretations with my supervisor and colleagues. As if justifying my choice of methods with my supervisor and colleagues in Norway prior to fieldwork was not enough, I was constantly bombarded with questions and calls for justification of my methods from my colleague field assistant who is also an MPhil candidate and notoriously biased in favour of quantitative methods of research in social sciences. In the end I was able to satisfactorily defend my methods and even whipped up his interest in qualitative methods in social sciences to the extent that he is considering mixed methods later on in his research on food security.

Again, Bradshaw (2001) advises that as researchers, we must strive to check our text with our research participant community to enhance the credibility or otherwise of our research. He admits however that in cases where that community is a powerful one, such as a multinational corporation, this check might be problematic. In my research, there was an allegation from a farmer that she believes a company that used to buy chili and fruits in general from the farmers for processing and export tend to use their so called ‘quality tests’ to beat down the prices of the crops they buy from the farmers. The farmer suspects the crops are deliberately made to fail on the quality tests in order to reduce their price. An official of the company categorically dismissed the claims and insisted that the company will under no circumstance do such a thing. Although the said official educated me on the company’s procedure for

buying crops from farmers, it still remains the word of the farmer against that of the company. Assuming I was required to check my text with such a participant community, it is likely that information such as the above will be struck out for obvious reasons.

In summary, this study has gone through and adhered to the principles of reliability and validity and taking a cue from Joppe's (2000) definition of reliability in research as: '...the extent to which results are consistent over time... and if the results of a study can be reproduced under a similar methodology, then the research instrument are considered to be reliable' (p 1) I am certain that this study will pass any validity or reliability test.

### **Ethical Issues**

Any kind of research presents the researcher with ethical issues. In my opinion, debates on whether or not ethics in research should be polarised into qualitative and quantitative is not particularly required because ethical issues mostly cut across the qualitative-quantitative divide.

Interviews, observations, written materials and audio-visual material are relied on by all researchers as their source of data. Qualitative researchers focus their research on exploring, examining and describing people and their natural environments. Ethical issues in research begin with decisions about the topics to study, the acceptable methods of investigating the topic, the right way to relate with participants in the study and the appropriate way to document or communicate the findings. O'Connell-Davidson and Layder (1994) defined research ethics as the conduct of researchers and their responsibilities and obligations to those being researched.

In choosing a topic to research Bradshaw and Stratford (2010) suggest that no matter how a case is selected, it is advisable to work on locations or on cases that are both appropriate and practical. In choosing a topic for my research, I ensured that the case will not offend, hurt or insult the culture and sensibility of my respondents. It will be irresponsible to conduct research on a topic that will create conflict or confusion due to the nature of the study or the kind of questions that are asked and the responses that are given. Indeed social science research is not conducted in vacuum therefore fellow geographers and colleagues are involved in my studies. I had to submit my topic for scrutiny from this community and answer questions on the ethical justifications for selecting such a topic.

Relationships with participants in research cannot and should not be downplayed in social science research. Starting from contact prior to fieldwork, it is important to treat participants with outmost respect and courtesy. In my study, my experience and certain unique characteristics of the people I talked to called for careful behaviour especially so as not to offend their culture, norm and practices. For instance, the use of emails and text messages to contact respondents might be regarded as acceptable practice and is even endorsed by certain literature. However, within the norms of the people I studied, sending a text message to an agriculture official I intend to interview for example might be regarded as disrespectful and even in extreme cases insulting.

The cultural norms teach that my personal presence or at worst a phone call should be the most appropriate way of contacting an official especially one who is older than me and not a text message or even an e-mail. In view of this and owing to the fact that I was in Norway at the time of first contact with gatekeepers and key informants, I had to rely on expensive international calls as well as sending a friend to these gate keepers and key informants to inform them about my intention to conduct research within their jurisdiction. Indeed, in the case of one of my key informants, I had to rely on my friend who went to her office and then I called my friends phone to talk to her after he had sought permission from her.

While in the field, researchers should negotiate access to participants to collect data, thus the quality of social interactions between researchers and the participants may facilitate or inhibit access to information. Once access to the field has been granted and the first steps of data collection are taken, researchers may experience ethical dilemmas that may not have been anticipated in the research plan (Field & Morse 1992). Many authors outline the responsibilities of a researcher to his/her research participants with regard to matters of privacy, informed and voluntarily consent and harm.

The nature of qualitative research involves invading people's lives and privacy. In my research I ensured that I respected the privacy of my informants. Asking questions relating to incomes for example can be seen to be invasion of private lives of my informants. Therefore questions related to incomes were carefully worded living the informant with a choice to provide answers that they are comfortable with. Again, on the surface of the topic it might seem that restricting access to responses provided may not be necessary however I ensured that the privacy of my informants was guarded through anonymous naming of informants.

Gaining an informed and voluntary consent from my informant before asking them questions was strictly adhered to in this research. I made it clear in the local language of my informants what my study is about, the kind of issues I am interested in looking at as well as what I expect from them. In addition to this I asked permission to record the interviews on tape and offered them the option to pull out at any stage of the interview if they get uncomfortable.

Ethics in research also entails that both the researcher and the researched should not be exposed to harm in the research process. One common argument has been that in the social sciences it is most unlikely to subject informants to physical harm. However, it is equally important to guard against subjecting informants to psychological harm as well. In my study for instance, a seemingly harmless question such as why a farmer decided to engage in growing of vegetables resulted in some emotional discomfort when the informant had to recollect the death of her husband who was the family breadwinner. In such an instance it was almost impossible for me to have anticipated this and the best I could do under the circumstance was to steer the conversation away from that unpleasant recollection.

I also made conscious efforts not to throw myself in harm's way during data collection. I gave up on a trip to visit one farm when I had to walk through a fast flowing knee-level river. At one point during fieldwork, I had to take a break in order to treat malaria.

## **Summary**

This study was conducted using qualitative research methods. Data was collected directly from primary sources through interviews. This was complemented with data from secondary sources such as existing literature on the subject, reports and other publications. In addition to this, I made use of observation. Like Crang wrote on observation as a way of 'taking part in the world, not just representing it' (1997b: p 360), I took part in the daily routine of the farmers I studied. This offered me the opportunity to gain added value to the time on the field and to complement the data I collected through interviewing.

Conducting research is exciting and this was no exception. Despite the excitements it comes with some frustrations as well. The ease of accessing data (assuming that that data even exists) in some parts of Ghana where record keeping is problematic was a source of frustration.

Again fatigue and subsequently a 3 day break to treat malaria which I suspect I got from mosquito bites during some of the evening interviews added to my frustrations. Since I had

very little control over when and how long I can conduct the research, I was compelled to squeeze in many things into a limited period of time. Nevertheless, the experience of listening to people who are eager to talk to you, the adventure of rural living and the ‘kingly’ treatment I received as a visitor was overwhelming.

Most importantly, despite the challenges, frustrations and excitement that came with the data collection, the quality of the data acquired for this study was not compromised in any way.



directly or indirectly in this sector. The climatic condition of the area is favourable for the production of a variety of crops and livestock. The potential for investment in agriculture is enormous due to the location of the Volta lake that covers 80 km of the western boundary of the municipality and the Dayi River to the east and its basin which provides arable land for the cultivation of a variety of food crops, tree crops and vegetables all year round and also suitable for fish farming.

Traditionally, the indigenes of the two communities selected for this study and their surrounding villages are noted for cultivating crops such as maize, cassava, cocoyam and plantain. However, recent trends show crop diversification or a total change in crops grown and other forms of farming diversification. Non-traditional crops have been introduced into the district and are cultivated mainly for export. The major non-traditional exportable crops that are being cultivated in the municipality in communities such as Kudzra, Gbefi, Fesi, Sovie, Torkor and Togorme are papaya and pineapple (both conventional and organic) to the German market as well as mango and chili pepper to the EU market. Sunflower is the latest addition to contemporary crops in the district. Other forms of diversification are found in the area of bee farming, grass cutter rearing and fish farming.

Torkor is located about 6km west of Kpando (Map 4.0). It is a mainly fishing community which is strategically located on the banks of the Volta River. Torkor used to be a transit landing bay for pontoons transporting foodstuff, livestock and people from the northern parts of Ghana to the south due to the poor nature of roads from the north. Torkor served as a transit point where the rest of the journey down south is made by road. The river also provided a major source of one of Ghana's favourite fish species, tilapia, as well as many other fresh water species of fish. The community used to be a very vibrant point of activity until the pontoons broke down some few years back and the presence of tree stumps in the river as well as the intrusion of Chinese fishermen made fishing not attractive to the locals.

Subsequently, the locals have switched to agriculture, mainly growing of fruits and vegetables along the banks of the river and irrigating the fields with water from the river. Torkor is home to chili farmers who have acquired land as a group along the banks of the Volta River.

Kudzra on the other hand is located about 15 km from Kpando (Map 4.0). It is mainly a farming community located south-east of Kpando. The Dayi River passes runs on the outskirts of the community and provides arable land for the indigenes to grow their crops.



The area is noted for growing vegetables and other crops such as cassava, plantain and yam. Due to the importance of this community, the road network connecting it to Kpando has seen re-construction to facilitate movement of people and goods to and from the points.

Kudzra is also home to many chili farmers who grow the crop on individually acquired lands. The map above provides an outline of the Kpando municipality and the location of the two communities selected for the study. The unique characteristics of these two communities influenced my decision to select them as points of focus for my study.

### **Physiographic Conditions of the Study Area**

The two communities selected for this study, Torkor and Kudzra are located in the Volta region of Ghana. The Volta Region is one of the 10 administrative regions of Ghana and it is located along the southern half of the eastern border of Ghana where it shares boundaries with the Republic of Togo. Greater Accra, Eastern and Brong Ahafo regions share boundaries with it on the west, on the north by the Northern Region, and on the south by the Gulf of Guinea. The region occupies an area of about 20,570 square km or 8.6 percent of the total land area of Ghana. The study area is located in the Kpando Municipality located within the Volta Region.

In terms of climate, the study area falls under a region with tropical climatic conditions just like the rest of the country. The area is characterised by moderate temperatures, ranging from 21-32° Celsius (70 - 90°F) for most of the year. It has two rainfall regimes in the year, the first is from March to July and the second from mid-August to October.

Rainfall figures, which vary throughout the Volta region, are highest in the central highland areas where the study areas are located and in the forest zone as well and are lowest in the Sahel-savannah zone in the north of the region. The maximum average annual rainfall figure is 2,103 mm and 1,168 mm, minimum. More than half of the land area of the region falls within the Volta River Basin, with the Volta Lake draining a substantial portion of the region. Torkor specifically is located on the banks of the Volta River and the Dayi River, a tributary river of the Volta passes through Kudzra as well.

### **Demographic Characteristics**

Torkor and Kpando are located in within the Kpando Municipality. The 2000 Population and Housing Census put the population of the area at 74,595. The population structure is young with about 38.1 percent aged between 0-14 and lower than the regional average of 41.1

percent. The aged population that is 60 years and above account for 9 percent, while the economically active population of 15 years to 59 years is represented by 52 percent. The population pyramid is therefore bell-shaped with a broad base, which tapers off with increasing age.

With young population, the district is characterized by high dependency ratio. There are however, exceptions in the age groups 5–9 years, 55-59 years and 60-64 years, which have larger populations than those of their immediate younger groups for both males and females. With increasing age, the structure looks slightly thinner for the males than the females, indicating that, at the older ages, the proportion of males is lower than that of the female except for the age group 15-19.

### **Socio-Political Context**

In the Volta region as a whole, more than 70 percent of the economically active population is in agricultural. The region has substantial agricultural resources, which include large expanses of land of which an estimated 1.5 million hectares are suitable for general agriculture (i.e. cultivation of crops and rearing of animals). Currently only 29 percent of the total arable land of the region is under cultivation. The major agricultural products staples cultivated are as maize, rice, sorghum, cassava, yam, cocoyam, plantain and vegetables.

Most small scale farmers in the study area just like in other parts of the country sell their produce irrespective of whether their yearly production is adequate to feed the family or not. They sell in poorly developed local commodity markets and then buy food at higher prices at other times of the year. Generally, agricultural commodity prices fluctuate between the seasons in response to supply and demand. Prices are cheaper at harvest time due to local glut of commodities, poor distribution network and poor market information. However, prices are lowest at harvest time mainly because most farmers are forced to sell their produce due to urgent need for cash to meet loan (used for farming) obligations and social commitments.

On the general agricultural commodity market, including the sale of livestock and poultry, the farmer is a price taker – having no influence over the levels and movement of his commodity prices because of his weak position in the market relative to buyers. Buyers or traders are able to exert a stronger influence on the market because they are generally better organized than farmers are and better informed about the market.

### **Making Decisions to Cultivate Birds-Eye Chili**

Explanations for rural diversification behaviour can be found in the economic literature which points out both incentives and disincentives for rural households to combine traditional crops with new crops, agricultural crops with animal husbandry or forestry activities (Kurosaki 1997), and/or agricultural activities with off-farm activities such as migration and tourist development (Barrett et al. 2001).

Again, related literature suggests that rural households adjust their activities either to exploit new opportunities created by market liberalization (Delgado & Siamwalla 1997) or to cope with livelihood risks (Barrett et al. 2001). These adjustments are found to have an important impact on income, income distribution and welfare across rural households (Reardon et al. 2000, Block & Webb 2001, Canagarajah et al. 2001,).

Farmers in Torkor and Kudzra in deciding to cultivate birds-eye chili are influenced by a host of factors. In the first place the previous cultivation of vegetables in general in the study area was focused on production rather than demand from consumers, which ultimately leads to the familiar phenomena of market gluts, wastage and high price fluctuations, particularly in the case of fast perishable commodities. The farmers explain that they used to rely on speculation which informed their cropping decisions. Traders from big cities come and tell them that a particular vegetable is in high demand in the city or outside the country. The farmers then proceed to cultivate that vegetable but upon harvesting the buyers don't show up or when they do offer extremely low prices making them run losses. This continued until the farmers in Torkor decided to come together to form a union in order to avoid the lure of speculators. For farmers in Kudzra however, they have not been able to form any strong farmers union due to factors that will be discussed in subsequent sections.

For farmers in Torkor, cropping decisions after forming the union was dependent on demand for the crop. In the case of birds-eye chili the decision was influenced by a strategic foreign investor who through the local agricultural officials encouraged them to produce it since he is willing to buy any quantity they are able to produce. Due to the formation of the union, the farmers in Torkor were able to enter into a formal agreement with the investor with the support of agricultural officials which included assurances from the farmers of the production of export quality chili on one hand and a guarantee from the investor to purchase whatever quantity is produced.

As stated earlier, Torkor farmers since 2008 have acquired a stretch of land of about five hectares close to the Volta Lake with irrigation facilities for the cultivation of birds-eye chili and some other vegetables. Although the land is owned by the union, farming is done on individually allocated portions of the land. On the average, each farmer is allocated around 0.2 hectares for farming with options available to acquire more at extra cost. The crop to be cultivated is decided on by the generality of the union depending on the offers from buyers and exporters. However, a farmer can decide to grow something different from what other farmers are growing. With regards birds-eye chili, the union leader said the group decided to cultivate it due to the agreement between them and their buyer. They were further influenced by the provision of a starter pack containing high quality seeds and some insecticides and fertiliser for nursery.

The farmers in Kudzra who are not organised into a formal union are disadvantaged in this situation. These farmers tend to rely on farmers in Torkor on what to cultivate in terms of non-traditional crops. These farmers through agricultural officials also offered to produce birds-eye chili on their own lands located at different locations.

Another factor that influences farmers in the study area in deciding on what to produce can be attributed to behavioural change. Dierdeen et al.(2003) argue that behavioural change among farmers is one of the prerequisites of agricultural modernisation processes and that the extent to which farmers adopt new ideas therefore impacts substantially on progress in productivity growth. Farmers decision making process, just like the decision making process of any group of people is influenced by cultural, social and psychological factors. A number of researchers such as Beedell and Rehman 2004 and Burton 2004, have attributed behavioural change among farmers to factors such as goals, attitudes and values.

Daniel, a birds-eye chili farmer in response to a question about why other farmers are not diversifying or shifting into the cultivation of new crops such as the bird-eye chili tells me about a prejudice among the people and even some farmers that farmers who diversify represent failed farmers who are not focused but are ‘tossed around by the wind’. Coupled with this is the widespread culture of risk aversion among the farmers interviewed. Even under the ‘right conditions’, such as the case in Torkor where there is an irrigation facility, support of agricultural officials and assurance of a ready market, this risk aversion sometimes with an exaggerated fear of crop failure prevailed especially among farmers who are not willing to diversify or shift into new crops.

Generally, farmers in Torkor have more power in deciding on what non-traditional crop they want to grow and for whom. The union leader gave one instance where the group refused to cultivate a crop for a potential buyer because they decided that the offer was not good enough. Before a buyer meets the group, their offer is usually assessed by agricultural officials for its potential benefits for the farmer. The local agricultural unit is led by a motherly figure who enjoys a lot of trust from the farmers who usually call her ‘Our Mother’.

At the time of conducting this research, the farmers union were met by a new exporter who was interested in buying cherry tomatoes if the farmers will be willing to cultivate it. Sitting through the town hall meeting with the farmers, I noted that most of the comments passed by the farmers begun with *‘since you (the exporter) were brought by our mother...’* pointing to the influence this official had on their decisions as to what to grow.

For elderly farmers interviewed, deciding to grow the crop was influenced by their age and by the fact that they are not strong enough to grow most traditional staple crops. One elderly farmer told me he used to grow yam, a tuber crop that requires pilling fertile soils into a mould to plant as well as putting stakes for the vines of the crop. He explains that when his energy begun to fall he was left with few options, either to hire labour on his yam farm, quit farming or switch to a new crop. He continues by stating that, *‘...it is good for me that birds-eye chili was introduced because it doesn’t require too much energy to cultivate like yam. During harvest, I even take my small stool to the farm and sit down to pick the fruits. Although I am old, I believe I can still grow this crop for a couple of years to come’*.

For farmers who are not yet cultivating chili or other new crops, their decision to venture into these new crops is likely to be influenced by the observable changes in the quality of life of those currently growing them. A farmer mentioned that his friend who is sceptical about shifting to the cultivation of chili *‘...begun to change his mind when he saw that I bought that new bicycle (pointing to the bicycle) from my chili sales’*. Again, I believe that with support from the state and donors, more farmers who cannot meet cost such as union dues and cost of acquiring land on block farms can be afforded the opportunity to reap the benefits of cultivating these high value export crops.

### **Chili Farmers on Block Farms in Torkor**

The Block Farm Program (BFP) was launched in 2009 in Ghana as a pilot in several locations in six regions. In block farming, farmers cultivate their fields as a group to reduce overall costs and to offer support across the crop-growing spectrum. Ghana’s BFP was intended to

bring in large tracks of arable land (in blocks) for the production of selected commodities in which the locations have comparative advantage.

The notion was to exploit economies of scale and ensuring that the block farms benefited from subsidized mechanization services and inputs (fertilizers, improved seed and pesticides) in the form of credit, as well as extension services, that were delivered to the farms and farmers by MoFA. Some of these government initiated farms were successful while others collapsed due to corruption and mismanagement. Following this some farmers came together to form unions and acquire block farms which are run by the farmers themselves and sometimes with support from donors and NGO's. Torkor block farm is an example.

The example in Torkor can be likened to *contract farming* which is described as an 'agreement between farmers and processing and/or marketing firms for the production and supply of agricultural products under forward agreements, frequently at predetermined prices' (Eaton & Shepherd 2001). This agreement usually involves the purchaser providing a degree of production support through, for example, the supply of inputs and the provision of technical advice. On the other end of this agreement, the farmer commits himself to provide a specific commodity in quantities and at quality standards determined by the purchaser. Again, the purchaser agrees to support the farmer's production and to purchase the commodity. However, the BFP is a slight deviation from contract farming in that management of the farm is left entirely in the hands of the farmers themselves who are usually allocated individual plots.

The union leader for the Torkor block farmers group explained to me that they acquired land for their block farms from their local chief for free. He mentioned the benefits they enjoy as a result of the formation of the union. These include the fact that they have more bargaining power and lower transaction costs in getting loans should they decide to access one. Other farmers interviewed as well as the key informants shared in the opinion of the union leader.

Land for the Torkor farmers block farm is a five hectare land about 500 meters from the Volta Lake. It has a simple irrigation system with water drawn from the lake constructed with support from the MP, MoFA, NGO's and welfare contributions of union members. The farm is a source of income and livelihood for some 100 farmers made up 56 males and 44 females. Up to four hectares is currently being used to cultivate birds-eye chili for an expatriate exporter who has been buying all the farmers are able to produce for the past three years once it meets export quality.

### **Benefits of Block Farming to Torkor Chili Farmers**

In 2011, an evaluation was carried out of the BFP by MoFA. Initial evaluation results show that there is keen interest in the BFP on the part of farmers. Participating farmers attest to the benefits they received including access to low-cost credit in the form of inputs and mechanization services, which have led to greater productivity, production and higher incomes.

Esinam, a female middle aged chili farmer on the Torkor block farm has no regrets at all for joining the union and BFP. She states that being a member of the union has been of enormous help to her especially when it comes to looking for a market for her produce. She cites an example of how she used to produce anything at all hoping that after harvesting she can get a buyer only to be disappointed until she joined the union. According to her, she finds farming on the block farm more exciting in the sense that most of the farmers usually come to work on the farm around the same time and engaging in conversations as they worked helped to remove any feeling of fatigue.

Komla, who has been farming on the block farm since it was formed, says he left his personal farm because of the distance from the village to the farm. He decided to take advantage of the proximity of the block farm to his house compared to his personal farm which was many miles away from the village. He points out that he has saved himself the stress of walking to and from his farm and the difficult task of transporting his harvest on head to the village to look for buyers. He mentions that farming on the block farm has been a double blessing for him in that he does not have to transport his produce nor look for a buyer.

Olu, the oldest farmer I interviewed (72 years) also mentioned proximity of the farm as the major reason he is still able to farm. He ruled out any chance of farming on his personal land due to the distance from the village. He adds that being on the block farm has helped him to rely on younger farmers for best farming practices and served as a check on his farm. All the farmers tend to plant around the same time also apply fertiliser and insecticides around the same time as well therefore any growth defect among the crops is easily identified and corrected.

The MDA also recognises that the BFP has been helpful to the farmers since exporters who come to her office are more likely to want to negotiate with block farmers than with individual farmers. Again, they are more willing to give out some inputs for free, inputs they usually sell to individual farmers because block farmers offer some degree of guarantee in

form of being organised into a group. Torkor block farmers for instance received free premium birds-eye chili seeds for nursing from the exporter who buys their produce while other farmers in Kudzra farming on their private lands have to buy them.

Again, Torkor farmers tend to receive recognition from political leaders and government officials both locally and nationally as a result of their union. The union leader, with a wide grin on his face told me how they were met by the Minister of Food and Agriculture for discussions and pointed out that such a visit by a high profile figure was unprecedented. He went on to say that especially during national elections periods they receive regular visits from high profile figures as well as donations and support. He cited the irrigation project which had support from the sitting Member of Parliament for the area as well as office furniture donations for the union office.

### **Challenges of Block Farming for Torkor Birds-Eye Chili Farmers**

Despite the many benefits pointed out by the farmers on the block farms in Torkor, they are faced with some challenges as well.

The most common challenge that was mentioned by the farmers is other costs aside the starter packs associated with growing birds-eye chili. Although they are appreciative of the cushion of free starter packs, the farmers point out that there are other costs as well, costs they claim they struggle to meet. Komla told me although he benefits from cultivating the crop, the benefits will increase if he can reduce start-up costs and crop maintenance costs. He mentions that as a member of the union, he has to pay GHC 300 (\$150) every year to cover the costs of acquiring and preparing his portion of land for cultivation and irrigation of the block farm in addition to monthly welfare contributions. He adds that he wishes to acquire more land to farm but that means he will have to pay more.

The farmers I interviewed in Torkor said they have not and will not take any formal loans nor borrow money from local money lenders for birds-eye chili cultivation due to previous experiences. Apart from their lack of collateral and the high interest rates, they are uncertain of crop harvests due to pest and diseases as well as unstable weather conditions in situations where the irrigation system breaks down. Regular breakdown of the irrigation system was mentioned by the union leader as a major challenge on the block farm. The general response from the farmers indicate that they have ruled out accessing formal loans although some of them admit the need credit to expand production.



More elderly farmers have extra costs in addition to the ones mentioned above. Olu for instance mentions that because of his age he has to engage labourers or other farmers to weed his farm for him and also harvest the chili. Chili harvesting on the farm is done by hand-picking and this is a slow painstaking procedure which requires bending over for long periods of time. He added that due to his advanced age he can only plant, apply fertiliser and weed part of the farm.

Another challenge facing birds-eye chili farmers interviewed is the spread of pests and diseases on the farm. Ama, told me she almost hit a jackpot two years ago when she had cultivated quality and abundant crops on her land and was waiting for a few more weeks to harvest. She said she heard rumours of the outbreak of a particular disease on one of the farms at the far end of the block farm away from her portion. She did not take any immediate steps since the outbreak was not close to her portion, however, within a few days the outbreak had spread over the whole farm resulting in many of them losing their crops that year including hers. She believes that if she had been planting on her private land she would have avoided that outbreak. Agricultural officials confirmed that this incident occurred once and admitted unpreparedness and slow response from their outfit when the outbreak was reported. However, an official explained that lessons were learnt from the outbreak and there has not been any such occurrence since.

Again, issues relating to the allocation of land on the block farm were raised by some 'unlucky' farmers. Although allocation is done through a balloting system, two farmers told me they are always unlucky and end up being allocated a less fertile and rocky portion close to the village foot path. Indeed they have become targets of cynical jokes from other farmers and they wonder why that portion of the farm is not struck out before balloting is done. The union leader in response concurs but explains that due to high demands of land the union is unable to strike that portion out. He adds that that portion of land is '*not that bad*' and that it is offered at a slightly reduced cost to those who eventually pick it. Again, some of the farmers argue that they get used to farming on a portion of land only to be re-allocated a new portion after a few years, a development they are uncomfortable with. The farmers will prefer to have control of land allocated to them for a lifetime or for as long as they wish to. The union leader agrees but points out that this is not possible because of the non-uniform nature of the terrain.

Some of the farmers also expressed reservation with the attention the union is receiving especially from political figures. They are particularly unhappy with the fact that they get this attention only during election periods amidst promises that are forgotten soon after elections. Again, there is the fear that politicians may want to use the union for political gains, a development that has led to conflict in many unions (especially non-agricultural unions). One farmer mentioned that there were disagreements as to which politicians should be given audience by the union and whether to accept donations from all politicians.

Finally, the proximity of the block farm to the village also presented some challenges. The block farm at Torkor is not fenced, the crops are therefore open to destruction by domestic animals as well to petty theft from the inhabitants.



**Photo 4.0. A farmer Harvesting Chili.**

#### **Birds-Eye Chili Farmers on Individual Farms in Kudzra**

Unlike birds-eye chili growers in Torkor who cultivate their crops on individually allocated lands on a single block farm, the growers of the crop in Kudzra operate on individual farms scattered in different locations in and around the Kudzra settlement. Again, although the farmers are able to organise themselves into a group in order to benefit from educational

programs organised by the local agricultural department, they do not have a formal farming union like present in Torkor.

In view of this they do not enjoy any of the benefits that are enjoyed by the counterpart farmers from Torkor. They are rather faced with a host of challenges which in the end affects the incomes they get from growing bird-eye chili. All the farmers interviewed for this study in Kudzra agreed that they will be better off organising themselves into a union and also acquiring a block farm for growing their crops. They explained that they had tried previously to form such a union without success but are still making efforts to as well as acquire land for a BFP.

Among the reasons the farmers gave me for the failure to form such a union was power play among themselves as to who should direct even the formation stages of such a union. The MDA told me she has taken charge of that role and she is certain the union will be formed soon. Again challenges to acquiring fertile and accessible land for their BFP was also being discussed with local rulers who are entrusted with land at the time of conducting this study.

### **Challenges Facing Kudzra Birds-eye Chili Farmers**

As stated earlier, Kudzra birds-eye chili growers do not enjoy the benefits associated with block farming. They are faced with many problems in their endeavour to reap the benefits associated with growing birds-eye chili.

In the first place, they have less control over deciding on what to grow in terms of non-traditional crops. The first point of call for exporters who want to enter into agreements with farmers in the district is usually farmers that are organised into groups and have farms that are easily accessible. The MDA explained that despite Kudzra farmers not being organised into groups, she makes efforts to at least present them with the opportunity to benefit from cultivating new crops that have been introduced into the area. In view of this, she makes conscious efforts to convince exporters to engage these farmers as well. With regards birds-eye chili, Kudzra farmers' decision to cultivate it was influenced by the fact that Torkor farmers had accepted to cultivate it and had already secured a deal with a buyer. Therefore they wanted to take advantage of this and also cultivate the crop individually.

In agreeing to grow birds-eye chili, Kudzra farmers did not benefit from free starter packs like Torkor farmers. Akpadi, a birds-eye chili farmer in Kudzra told me they were told that unlike their counterparts from Torkor, they cannot benefit from the free starter pack because

they are not organised into a union and therefore offer no guarantee to the buyer. He adds that because he is interested in growing the crop he had to pay for the pack (at around GHC 50/\$20) and pointed out that if they really want to reap the full benefits of cultivating the crop, they must organise themselves into a union.

Another challenge they face was with getting agriculture extension officers to pay regular visits to their farms to ensure that they are meeting strict export quality standards required by buyers. It is easier for extension officers to supervise the cultivation of the crop on the block farm at Torkor since all the farms are located at the same place. However, in Kudzra the farms are scattered and some in very remote locations making extension officers reluctant to go there. Indeed I made an attempt to visit one of the farms and gave up on the way because it became dangerous when I had to cross a knee level river. Dzidzor told me she lost most of her birds-eye chili from the previous year due to wrong application of an insecticide which resulted in the fruits falling off the plant prematurely. She reported a suspicious change in the growth of her crops to the extension officers but due to the distance to her farm they were not willing to visit and therefore could not offer any remedy to reverse the problem.

Again, most of the birds-eye chili farms in Kudzra are not accessible to farm machinery such as tractors used in land preparation. In view of this, the farmers here have to prepare land manually mostly through hired labour or themselves. For farms that are accessible by a tractor, it is not economical for farmers to pay for such a service. The farmers explain that if there were three or more farms in proximity, it will be more prudent to share the cost of such a service.

Apart from these, the farmers are faced with the challenge of transporting their harvest to the collection point for the buyer whereas their counterparts in Torkor have the advantage of the buyer coming to buy and pick up the chili from the farm. Kudzra farmers have to transport their harvest on their head several times and this is worsened depending on the distance from the farm to collection point. Mike is a physically challenged farmer and he explained to me that due to his condition he is forced to hire people to transport his harvest to the collection point at an extra cost. He emotionally lamented about their failure to form a union and begin block farming since he believes they will cut costs and make more profits.

### **‘The Rains Failed Us’- The Role of Climate Change in Birds-Eye Chili Cultivation in Torkor and Kudzra**

The IFAD is of the view that rural smallholders are less resilient because they have fewer assets to fall back on when shocks occur (IFAD 2008). SSA is an environment in which there are long-standing risks such as ill health, market volatility, food insecurity and poor governance. These are compounded by the degradation of natural resources and the adverse effects of climate change putting opportunities for growth beyond rural smallholders or making it more difficult for them to achieve growth. SSA’s vulnerability to climate change comes both from being predominantly located in the tropics and from various socioeconomic, demographic and policy trends limiting their capacity to adapt to change.

Ghana is not being spared the adverse effects of climate change. Yaro (2010) states ‘that the vulnerability of Ghana’s agriculture to climate change is largely due to her dependence on rain’. Farming in the study area is generally rain-fed except for the Torkor BFP which relies on some sought of irrigation with water drawn from a close-by lake. Despite the irrigation system at Torkor, birds-eye chili farmers nevertheless rely on rain to some extent due to the frequent breakdown of the system. The union leader explained to me that having noticed the unreliable nature of rainfall over the past years and its consequent adverse impacts on their crops, they decided to solicit support to build the irrigation system which has been very helpful. One farmer points to the fact that had it not been for the irrigation system he would have lost her crops from the previous year due to the erratic nature of rainfall. She maintains that despite the frequent breakdown of the system it was still very helpful and hoped that they will be able to build a better one soon.

The situation in Kudzra is entirely different. Due to the nature of birds-eye chili cultivation in that area, it will not be possible to have a single centralised irrigation system as exists in Torkor. From the interviews I conducted in Kudzra, irrigation is in the form of transporting water in buckets or watering cans from the nearest water body to the farm. However, some of the farmers explained to me that due to the distance from their farms to the nearest water body, there was no way they could rely on that method. For birds-eye chili cultivation to be successful, constant, reliable and even supply of water is very necessary.

A common phrase that run through responses to questions about the challenges they ( Kudzra birds-eye chili farmers) face was ‘...when the rains failed us last year...’ prompting me to

probe further the impact of climate change on the cultivation of the crop in this remote part of Ghana. Sena, expressed his confusion in this statement:

*'I don't know what is happening, for the past two years, the rains don't fall when they are supposed to fall. This really makes me lose my crops since I can't water them.'*

The farmers also expressed their worries about the volume of rain which is either too much or too little when it falls. The farmers receive no information on weather forecasts therefore resort to prayers for abundant rain during the planting season. *'All we can do is pray that there is enough rain after planting or we can just do what our colleagues at Torkor are doing by acquiring land by the river and irrigating it because as it is now nobody can tell when it will rain and when it will not'*, one farmer said.

For farmers in Kudzra without a functioning irrigation system, crop loss as a result of unreliable rainfall patterns was identified to have a major impact on the incomes of farmers. In some instances, some Kudzra farmers report of the loss of crops in an entire season due to poor rainfall. One farmer suggests that other farmers are not willing to cultivate vegetables in general because they consider it as a huge risk in the face of unpredictable weather conditions. The impact of this risk is reduced in Torkor because of the irrigation system there and this translates into the incomes that these farmers accrue.

The scope of my interviews did not cover the farmers' knowledge on climate change or its impacts. However, the interviews revealed that they are aware of weather variations and how this is affecting their productivity. I asked the MDA if there are any specific efforts to educate the farmers within the study area about climate change and its implications. She admits that there is no such programme yet however plans are advanced to begin a comprehensive education outreach programme about the issue.





**Photo 4.3. Irrigation of Torkor Block Farm.**



**Plate 4.4. Irrigation Valve on Torkor Block Farm.**

### **Ready Market: Myth or Reality?**

Most poor farmers especially in SSA are not linked to markets for many reasons including their remoteness, poor infrastructure, low production, low farm-gate prices and lack of information. Presently, there are many practical initiatives to find ways to link smallholders to markets in a more effective way. These actions are being led by groups of farmers, traders, processors, NGOs and to some extent by some government agencies. Ultimately, the aim is to ensure that smallholders will raise their productivity and output by engaging more with markets, not only producing and selling more, but also buying in more inputs, accessing financial and other services and obtaining technical assistance. It is expected that the better these markets function the more growth will be delivered.

There are two sets of arguments relating to ready markets for agricultural produce from smallholders. On one hand is the hailing of the idea of ready local and global markets by some authors as very beneficial to smallholders (Gulati et al. 2005, Minot & Roy 2006). The argument is linked to the practice of contract farming with the suggestion that access to a ready market through contract farming enhances the income of farmers which is attributed to the economies of scale enjoyed in that method of farming. It is also argued that markets allow farmers to benefit from increased production in that limited demand in village and district markets can be overcome by selling to more distant urban and export markets, where apart from larger demands, consumers may also be prepared to pay for additional quality and variety of produce.

On the other hand other authors argue that so called ready markets exist as a means of exploiting farmers by large agribusiness firms due to the unequal bargaining power (Little & Watts 1994, Singh 2002). They criticize the idea of ready markets through the practice of contract farming on the basis that most of the contractual terms are too costly for smallholders to comply with and that most large firms break the contractual terms at the expense of the smallholder due to unequal market power. Again, some authors also such as Guo et al. (2005) argue that the notion of ready market is only beneficial for large scale farmers and that it only serves to push smallholders out of the market and could even lead to rural inequality and entrench poverty among the rural smallholders.

In my study on the impacts of birds-eye chili cultivation on farmers' income, ready markets were available to growers of the crop within the study area. In actual fact, the deal was secured by block farmers in Torkor who were operating a hybrid of the contract farming



method. Subsequently, individual birds-eye chili growers in Kudzra also appealed to benefit from this market. The agreement for the cultivation of the crop by the farmers within the study area on one hand and the buyer on the other involved the farmers producing any quantity of the crop to a specific export standard and the buyer being obliged to buy all that is produced once it meets the quality standards.

Majority of the responses to the functioning of a ready market from the farmers shows that they are happy with the idea. As stated earlier, the farmers used to produce crops on speculation and after harvesting they begin the frustrating process of searching for buyers. However, with regards birds-eye chili, they are assured of a buyer prior to harvesting and they have been benefiting from this arrangement for some time now.

*‘The ready market exists. I wish I can produce more because everything I produce is bought by the buyer and I receive money on the farm immediately’* one farmer revealed. She adds that not only does the ready market exist but also the market literally comes to them on the farm. She continues *‘we don’t have to worry about where to store the harvest or how to transport it.’* The farmers are constantly in touch with the buyer through their leaders and the farmers inform the buyer when the chili is ready for harvesting. Within a day or two after harvesting, the buyer comes in to buy the produce and transport it to the capital for storage and export. This arrangement effectively removes middlemen who usually factor so called ‘facilitation fees’ into transactions to the disadvantage of smallholders.

For farmers in Kudzra, the same arrangement applies however they have to transport the harvest to a collection point in the community for the buyer since they farm on separate farms. Despite this challenge, they are glad to have a ready market since they are saved from the trouble of having to look for a buyer, sometimes requiring that they personally transport the produce to the city.

The ready market however poses some challenges. A few of the farmers I interviewed alleged that they believe they are sometime given a raw deal when the buyer will claim that their harvests do not meet export quality and therefore will reject them or offer to buy them at lower prices. I made efforts to verify these claims from a local representative of the buyer who dismissed the claims and adds that they are in constant touch with the local agriculture office and with the farmers and they educate them on meeting export quality standards. The MDA corroborated this and confirms that they educate the farmers on what qualifies their

produce for export and she believes that they can determine whether or not their crops meet the standards themselves.



**Photo 4.5. Farmers Watch as Chili is Weighed by a Buyer.**



**Photo 4.6. Chili Ready to be Transported.**

It is interesting to note that other farmers who do not mention this as a challenge get furious at this suggestion by their colleagues. *'We all know that we cannot get the price the Whiteman is offering to buy our chili from any other source. I have been growing vegetables for some time now and this is the first time I am able to project how much I will get from my farm even before sales and what I get is usually close to my projections. I am get angry when some of the other farmers make these allegations, they are just ungrateful!'* one farmer responds furiously when I asked him about the claims by his colleague farmers.

Again, the lack of competing buyers meant that the farmers have less power in negotiating. The union leader hopes that in the near future they will be able to have access to more buyers in order to increase their bargaining strength. He adds jokingly, *'We are very happy with what we are paid for our chili, but who would not want more money?'*

### **Livelihood Assets and Birds-Eye Chili Cultivation in Torkor and Kudzra**

#### *Natural Capital*

Land in the study area is communally owned. For agricultural purposes, a family land system is the commonest. Generally members of the two communities studied do not need formal permission to clear virgin lands usually away from the community for farming. Lands are intrusted in the care of the local chief from whom outsiders must seek permission from before use. In order to avoid conflicts, a farmer who wants to clear virgin land close to that of another farmer must seek permission to know the direction in which that farmer will like to expand his farm if he needs to.

Torkors farmers acquired land for their BFP for free from their local chief. However the farmers are charged a small amount before land is allocated to them to cover maintenance of the irrigation facility and other expenses. For Kudzra chili farmers, all of them are farming on lands that were acquired for free. For Torkor farmers, the Volta Lake is an important natural asset. Apart from serving as a source of water for irrigating their farms, the lake also serve as an important source of fish for the community.

#### *Human Capital*

A combination of family and hired labour were the predominant forms in the communities with the former being the most prevalent and the latter only solicited from community members when one is overwhelmed by farm work, mostly weeding and harvesting. In terms of family labour, family members and sometimes more elderly children are mostly relied

upon for picking the chili. A recent campaign to stop the use of child labour on the Volta Lake was extended to farms as well. The farmers explain to me that it has been their tradition for children from a certain age upwards to accompany parents to the farm and help with the less tedious aspects such as picking fruits. This is a tradition I personally share in and have experienced and as a kid I regarded as a punishment not to be allowed to follow my parents to the farm to pick fruits. They therefore find the exaggerated use of ‘child labour’ within their context to be inappropriate.

The use of hired labour is also common especially on Torkor farms compared to Kudzra farms. This is because the Torkor farm is close to the community and the rates charged by labourers for walking to the farms are removed. Hired labour is also mostly used by elderly farmers who are not strong enough to do all the farming or whose grown children have migrated to the city in search of better jobs.

#### *Social Capital*

Social capital lacks a single universal definition: it tends to be defined to suit the context in which it is being used. For the purpose of this study I defined social capital using Grootaert and van Bastelaer’s (2002) definition as ‘...the institutions, relationships, attitudes and values that govern interactions among people and contribute to economic and social development’ (p 122). All the farmers’ interviewed in this study acknowledged that they had at one point or the other enjoyed assistance on the farm or related to the cultivation of the crops. This assistance is usually from neighbours, friends and relatives. Olu, the oldest farmer I interviewed told me his colleague farmers on the farm have come to his aid many times in the past on the farm by helping him to clear weeds, apply fertiliser and harvest his crops. For Torkor farmers, the formation of the union provides them with an important social capital which creates social cohesion and harmony.

#### *Physical capital*

Bicycles played an important role in the activities of birds-eye chili farmers within the study area especially in Kudzra. They are used by the farmers as a means of transport to and from the farm as well as to convey harvested crops. However for farmers whose farms are located on high lands the bicycle is not very helpful to them.

The presence of modern farm machinery is absent from farms in the study area except for Torkor where the farmers hire a tractor at the start of the planting season to clear the land.

From this point to the point of harvesting most of the farming activities are done by hand or with the traditional hoe and cutlass. In between planting and harvest, a simple spraying machine is sometimes used to apply chemicals such as insecticides. Again, there is a one room office block near the Torkor block farm which serves as the union office. The union leader keeps records members, production and certain transactions in this office. The office also serves as a meeting point for the farmers.

For reasons such as location, accessibility and cost Kudra farmers are unable to hire a tractor for land preparation. They look forward to acquiring their own land for block farming in order to be able to share the costs of land preparation.

### *Financial capital*

Within the study area, accessing credit is not too difficult since there were a host of savings and loans agencies available especially in the nearby Municipal capital, Kpando. There were no credit companies within the study area itself apart from traditional money lenders popularly referred to as *susu-collectors*. Interestingly, all the birds-eye chili farmers interviewed in Torkor revealed that they had not accessed any formal loans for cultivating birds-eye chili. They admitted that previously, they used to access loans for farming but most often than not they run into huge debts and therefore if presented with some sort of cushion, they will avoid loans for farming altogether.

For Torkor birds-eye chili farmers, this cushion came in the form of free starter packs.

*‘Because I was given the free starter pack, I decided that I will not borrow money to cultivate the crop, I just sought for help from my children in the city and some relatives who supported me to grow my first crops. After I made profits from the first harvest, I am able to finance my farm now’,* one farmer explained.

Kudzra birds-eye chili farmers on the other hand were not given the starter packs for free since they were growing the crop as individuals. Some of them admitted that they took some loans mainly from *susu-collectors* to buy the starter packs and to finance the rest of their farming activities. One farmer told me of the challenge he faced after taking the loan.

*‘The first two years were terrible for me, the rains failed us and I lost almost everything in the first planting season. In the season my crops were attacked by a*

*diseases and I lost everything too. I was lucky after that and made a little profit and although my income from the chili farm is a bit stable now, I am still repaying the loans so I have not fully recovered yet.'*

### **Birds-Eye Chili and Incomes of Torkor and Kudzra Farmers**

As stated earlier, the relationship between poverty reduction and agricultural productivity has been studied in detail for decades. The potency of this relationship is supported by more recent studies such as the one by Thirtle et al. (2003) which revealed a strong correlation between productivity gains in agriculture and poverty reduction. Specifically with regards SSA, some studies conducted consistently show that agricultural productivity gains have raised rural incomes by directly increasing farmers' incomes and of particular importance to poorer households, by increasing employment opportunities and wage rates (Dorward 2003).

Kuyiah et al. (2006) argue that given small land sizes in SSA, land productivity must increase to increase farmers' income. This according to them can be achieved through diversification towards market-oriented production of high value enterprises such as horticulture and non-traditional export crops among others for both urban and international markets. Such activities often take advantage of new market opportunities created by changes in the socioeconomic environment.

In this study of the impact of birds-eye chili cultivation focus was on the incomes accrued from the cultivation of the crop as compared to other previous crops or activities engaged in by the farmers. The study of this impact was limited to only those who cultivated the crop or to only the incomes that are accrued from the crop for farmers who may be cultivating other crops or engaged in other activities.

Majority of the birds-eye chili growers from Torkor used to grow okra, a vegetable grown mainly for local markets with a few quantities exported as well. In addition, some of the farmers interviewed also used to be fishermen, plying their trade on the Volta Lake. One farmer explains why he decided to abandon fishing and venture into farming:

*'It was very risky to fish on the lake because of the tree stumps. I lost many of my friends on the Lake and it's not as if we make so much money from our catch. So when I was introduced by a friend to vegetable farming, I weighed the options, considered my risks on the lake and decided to abandon fishing. I think it was a*

*good choice because I make more money from growing vegetables than fishing and growing vegetables is less stressful and risky compared to fishing.'*

He continues to explain that he began his vegetable farming with growing okra. The harvests were either transported to Kpando, at costs borne by the farmers themselves and sold to market women or the market women came to Torkor to purchase the crop for onward sale in various markets.

There was a general consensus among the farmers that growing okra had a less positive impact on their incomes compared to growing birds-eye chili. In the first place, okra cultivation was characterised by persistent price variations over the entire period that the farmers cultivated it. The main reason for this price volatility was due mainly to non-existent or poorly developed markets. Again, lack of storage facilities during bumper harvest coupled with poor transport options meant that there were huge surpluses pushing prices down and resulting in harvest getting rotten. In addition to this, okra is not a popular export crop and tends to be sold only in local markets.

The farmers pointed out to me that due to the serious nature of the price volatility, it will be difficult to fix even an average price for a basket of okra. However, the interviews revealed that the farmers used to sell or are offered between GHC5 (\$1.7) to GHC20 (\$6.2) for a basket of okra weighing between 6-10 kg. A farmer told me that the situation gets so bad to the extent that there are many instances where she hands over all her harvest to market women with an agreement to receive payment if the market woman is able to make sales in bigger markets. However, most often than not, the market women send information that they are unable to make sales or the vegetable got rotten therefore are unable to pay the farmer.

*'Since I started growing birds-eye chili I have been receiving higher and more stable incomes compared to the time I was growing okra. In fact I grow a few other vegetables as well but I can say that the chili alone accounts for more than 80 percent of my income, so in the next season I will grow only chili'* Esinam told me. A box of birds-eye chili (5 kg) was sold for about GHC 30 (\$10) at the time of conducting this study. The farmers confirmed that since they started growing the crop they have enjoyed slightly higher prices for their harvests apart from one year in which the crops were attacked by the Nematode disease.

As stated earlier, it takes between 3-4 months from planting for birds-eye chili to be ready for harvest. This implies that the farmers are able to make between 3-4 harvests in a year.

The chili farmers in Torkor say they are able to reap between 10-15 five kg cartoons in a good harvest on a 0.2 hectare farm. Per this estimate, the farmers make between GHC 300 (\$100) - GHC 450 (\$160) at each harvest. This amount sums up to between GHC 900 (\$300) – GHC 1800 (\$640) per annum.

My initial thought was that this amount is probably small to have any real impacts, however interacting with the farmers revealed otherwise. It is important to put this amount in perspective to explain why the farmers find cultivation of the crop as impacting their incomes positively and two policy indices can be used to put these amounts in context. In the first place, at the time of conducting this study, Ghana's daily minimum wage was pegged at GHC 5.2 (\$1.8) and according to the World Bank Human Development Index, almost half of the national population live below the poverty line surviving on less than \$1 dollar per day and as many as over 75 percent live on less than \$2 a day. The situation is worse particularly for smallholders who are not employed formally and therefore are not guaranteed this daily minimum wage aside the many problems discussed earlier that these farmers have to grapple with on daily basis.

Secondly, Ghana has a social cash transfer programme known as Livelihood Empowerment Against Poverty (LEAP). LEAP provides cash and health insurance to extremely poor households across Ghana to alleviate short-term poverty and encourage long term human capital development. The government started a trial phase in March 2008 and then began expanding gradually in 2009 and 2010. Between April 2010 and April 2012, LEAP households received between GHC 8-15 (\$2-5) per month depending on eligible beneficiaries per household. Eligibility is based on poverty (measured by a proxy means test) in addition to having a household member in at least one of three demographic categories: Single parent with orphan or vulnerable child, elderly poor or person with extreme disability unable to work. Evaluations done on the programme suggest that impacts on income and household consumption were very little or of no effect due to the irregular payments, the lumpy nature of payments when made and the low level of benefits. Sitso, a bird's eye chili farmer and former beneficiary of LEAP points to the obvious reason why she is better off growing chili instead of depending on the cash hand-outs to take care of her 2 children. She put on record that:

*'I could not survive on the LEAP money and I had to always go borrowing since my husband passed away during a fishing accident on the lake. The money I got was small and it was never paid on time or consistently either.'*



*Growing chili has really turned things around for me. As I speak to you my 2 children are able to continue with their schooling after I withdrew them because of school fees arrears.'*

Vegetable farming is not as popular in Kudzra as compared to Torkor. The birds-eye chili farmers I spoke to in Kudzra used to grow staple foods like maize and cassava until they were introduced to vegetable cultivation by agriculture officials. The average size of a birds-eye chili farm in Kudzra is less than half a hectare. Of the farmers interviewed here, the biggest farm stood at around 1.2 hectares. Yao, who owns this farm, is a retired teacher of the local school. He explained to me that he decided to go into chili farming because the retirement benefits offered him was not very attractive and he wanted a supplement. He added that it was a wise decision he took since apart from income from the farm almost matching his monthly retirement benefits, he sees the activity as a source of being active and exercise. He strongly believes that if they (Kudzra birds-eye chili farmers) are able to form a union they stand a better chance of reaping more benefits than they presently do.

The harvests from Kudzra are sold at the same price as Torkor since they deal with the same buyer. However, for reasons discussed earlier, Kudzra farmers tend to incur more expenses as compared to Torkor farmers in birds-eye chili cultivation. The farmers from Torkor and Kudzra are unanimous in stating that the cultivation of the crop has a positive impact on their incomes compared to cultivating other non-traditional crops. In addition to this this positive impact is felt more by farmers in Torkor compared to farmers in Kudzra mainly because Torkor farmers are able to cut avoid more of the costs associated with growing the crop compared to their colleagues in Kudzra.

During fieldwork for this paper, my data collection period coincided with meetings between the farmers from Torkor and Kudzra and non-traditional crop exporters on separate occasions. I observed that the quality of life differed between these two groups of farmers who were cultivating the same crops. For example, during the meetings I observed that the farmers from Torkor attended the meeting with more bicycles and motorcycles than the farmers from Kudzra. In addition to this, the farmers union from Torkor was able to organise some sought of refreshment for their members during the meeting. Again, I noticed a couple of small shops in Kudzra selling agro chemicals and other agricultural tools. My conversations with shop owners revealed that chili farmers are their main customers.

### **The Future of Birds-eye chili Cultivation in Torkor and Kudzra**

As discussed earlier, two main suggestions have been put forward by scholars in relation to how best smallholders in SSA can escape from the poverty trap. On one hand is the encouragement of these farmers to increase yields of the crops they are currently cultivating. On the other hand, for those who reject this suggestion, is the call for a rapid rural-urban movement, in other words these farmers are to abandon farming and proceed to urban areas where poverty levels have been described as considerably lower than rural levels.

I do not share in these two opinions. The first suggestion is one of the reasons why this study was conducted and that suggestion has been critically discussed and analysed. If the increasing yields argument is to be considered, the focus must be on which crop yields to increase and not on a blanket increase in yields. Increasing yields from high value export crops like fruits and vegetables can be encouraged when smallholders accept to shift to their cultivation.

Again, I disagree with the rapid rural-urban transition suggestion. I conducted a research on rural-urban migration in the same area selected for this study and one conclusion is that, residents prefer to stay in the rural areas provided they can engage in any profitable activity since they are convinced that urban jobs are largely non-existent (Asase 2008). The consequences of rural-urban migration in Ghana are visible: Overcrowding, congestion, inadequate housing, high rates of unemployment and crime. At least for SSA, a rapid rural-urban transition will probably spell doom for smallholders who may not have the skills needed for urban living.

The cultivation of birds-eye chili is likely to expand in the study area in the near future. Its growers interviewed for this study were unanimous in admitting that they will like to expand their farms in the future if they have the means to do so. While growers from Kudzra hope to acquire their own stretch of land to begin a block farming programme similar to the one in Torkor, Torkor farmers look forward to expanding their present farm or acquiring new land to start another block farm. It is possible that in the future there will be interest in the cultivation of birds-eye chili from commercial farmers and it is unclear what impact this can have on the smallholders and the incomes they accrue from the activity. In addition to this, expansion of cultivation close to river banks will mean clearing vegetation along these rivers which is a threat to the water body.

The leader of the Torkor farmers group revealed to me that there is a lot of interest from many people who want to start cultivating the crop. This revelation raised the issue of whether more farmers growing the crop will lead to over production resulting in prices being pushed down. Interestingly, the farmers are aware of this grim possibility against the background of previous experiences with the cultivation of traditional crops. Their leader told me they have therefore decided not to concentrate on the production of chili alone and for that matter any single non-traditional export crop in the future. He adds that they are developing a ‘basket’ of high value export crops that will be suitable for cultivation in the area and plan to cultivate these crops based on their demand in the future. He mentions that so far they have in that basket chili, cherry tomatoes, cucumber, carrots and cabbage. He is of the opinion that if they grow crops with different uses such as carrots that can be eaten raw or in salads, used to make juice or to feed animals, they stand a higher chance of reaping more benefits. For Kudzra farmers, their priority now is to acquire their own block farm although they also admit that they are hoping to expand their chili cultivation in the future.

The MDA is convinced that chili and other high value export crops have a huge potential in the study area. She explains that with over 25 years of experience working with smallholders in different parts of the country, she has observed the tremendous impacts birds-eye chili cultivation is having on farmers’ incomes in the area. She admits that presently, her outfit is focused on promoting the cultivation of similar crops. However, she is worried about the seeming lack of interest from more youthful sections of the area. On the Torkor BFP for instance, the youngest farmers is aged 31 years. At the time of collecting data for this study, the MDA informs me that plans have been put in place to encourage the youth to venture into the cultivation of these crops. She cites the formation of agriculture clubs in schools in the area as one of the steps being taken in order to develop interest among the youth from an early stage.

The government of Ghana has seen the potential in this effort by these farmers. In view of this a \$2 million communal field Pack-house with funding from Africa Development Bank has been built at Vakpo (about 25 km from Kpando). This Pack-house according to officials is for stakeholders such as farmers, exporters and local traders engaged in the production and marketing of fresh horticultural crops. This facility is to help improve the quality and shelf life of the crops and thus enhance their competitiveness on local and international markets. The Pack-house has packing lines for vegetables and fruits. An official at the facility is of the view that there is a huge local market for vegetables which remains un-exploited. She

explains that hotels, restaurants and supermarkets in the cities still import fresh vegetables mainly because of their improved processing and packaging. She adds that the Pack-house aims to provide infrastructure and quality system that will promote the production of better quality and competitive produce for domestic and export markets.

### **Summary**

This chapter puts the study area into context by presenting a physiographic, demographic and socio-political profile of the area. It went on to present an analysis of and reflections on data collected for this study and presented the vital elements of the data which are most relevant to the objectives of the study. The chapter concludes with a section of what the future holds for birds-eye chili cultivation in the study area.

## CHAPTER FIVE

### Findings and Recommendations

#### Introduction

This chapter discusses the major issues that were revealed by the study. Several of the issues are relevant to discourses on the role of non-traditional crops on incomes especially among smallholders.

#### Findings

The study revealed a number of key issues. These include the following:

##### *Increasing yields versus shift to new crops*

The study revealed that farmers within the study area are not particularly enthused with the argument of increasing yields of traditional crops since they argue that increased yields most often than not results in surpluses and wastage at losses to them. This is as a result of the absence of storage facilities, poor markets and reduced demand during bumper harvest periods. Again, they point to the fact that the crops they grow, such as cassava and plantain, are mainly for local markets and consumption suggesting that limited markets and consumption has a negative impact on income accrued from their sale. In view of this there is a gradual shift from the cultivation of traditional crops to that of high value export crops since these crops have certain advantages over traditional crops.

With regard birds-eye chili, the study revealed that the farmers prefer to grow this crop compared to growing traditional crops such as cassava and plantain because birds-eye chili requires less physical effort and labour to cultivate and most importantly increased yields represents more incomes since the farmers already have a market for it. Again, a traditional crop like cassava is difficult to uproot during harvest and is bulky and heavy to move about after harvest. However, birds-eye chili harvesting involves hand picking and is less bulky and less heavy to move.

##### *Smallholders and adoption of new crops*

The study revealed a number of factors that influence farmers in deciding to shift to the cultivation of a new crop. It is evident from the study that there is no comprehensive education programme aimed at explaining the benefits of these crops to the farmers. The farmers from the study area rely on advice from agricultural officials to make cropping decisions. Other farmers elsewhere within the study tend to copy from colleague farmers who already adopted a new crop.

Again, it was revealed that risks such as crop failure and unpredictable rainfall patterns also play a key role in new crop adoption decisions among farmers therefore the availability of technology to mitigate or reduce these risks was of importance to the farmers.

An interesting finding was that there is a cultural norm among farmers that regards farmers who experiment with new crops as failed farmers who are unsure of what to grow. This has a level of influence on farmers' willingness to adopt new crops or experiment with new technology.

Finally, the promise and effective functioning of a ready market had a major influence on the farmers deciding to shift to the cultivation of birds-eye chili. More importantly was the relief of not having to store or transport their harvests themselves since the harvests are purchased either on the farm (in the case of block farmers) or at a central location (in the case of individual farmers).

#### *Block farming*

The study revealed a unique brand of group farming in one of the two study areas. This type of farming referred to as block farming can be described as a hybrid of contract farming. It is similar to contract farming in that a large track of land is collectively farmed by a group of farmers. However, it differs from contract farming in the sense that each farmer is allocated a specific portion of the land and he/she personally manages that portion with proceeds from that portion going directly into his/her pocket.

It was observed that the block farming concept brilliantly taps into the advantages that come with farming collectively on a single stretch of land and at the same time avoids the disadvantages that are associated with traditional contract farming such as exploitation by large firms. The block farming method is more beneficial to the farmers as compared to other farmers within the study area who cultivate birds-eye chili on separate individual farms. During the study, it became evident that although birds-eye chili harvests are bought at the same price from block farmers and individual farmers, individual farmers tend to make lesser profits due to the extra expenses they incur as a result of not farming on block farms. The individual farmers from Kudzra themselves admit that not forming a union and not farming on a single stretch of land is negatively affecting the incomes they accrue from growing birds-eye chili.

### *Smallholders and farmers unions*

One major finding revealed by this study was the critical role the formation of a union played on the incomes that are accrued from the cultivation of the crop. For farmers within the area of study who have constituted themselves into a single unified front, they enjoy a host of benefits which ultimately impacted their incomes such as having a stronger bargaining power with buyers. The farmers union has particular influence on incomes in a number of ways. These include reducing per-unit handling or processing costs by assembling large volumes (economies of size or scale), distributing to among themselves any net savings made in handling, processing and selling operations, upgrading the quality of supplies or farm products handled and developing new markets for products. Exporters are more willing to deal with smallholders who are organised into a group. Again, they receive more support from the state, donors and NGO's as a result of forming a union.

### *Climate change and irrigation*

The scope of the study did not cover farmers' knowledge of or the impacts of climate change on the cultivation of birds-eye chili. However, the study revealed a subtle awareness among farmers of changing and inconsistent weather especially rainfall patterns. Concern was raised by the farmers regarding the failure of rains to fall at a time and in volumes that has been characteristic of the area pointing to changes in climate.

To this extent, farmers from one part of the study area have constructed an irrigation system with the nearby lake as source of water. Under climate change conditions, the availability of water in the absence of reliable rainfall is very crucial for the success of farming and the study points to the impact this ultimately has on income of farmers studied. However, the source of water for this irrigation system is also at risk from the impact of climate change and through the activities of the farmers who clear vegetation along its banks in order to farm. Birds-eye chili farmers relying on rain-fed agriculture had their incomes negatively impacted compared to their colleagues with support from irrigation. The study revealed the risks farmers face in relying on rainfall to grow their crops to the extent that farmers sometime lose all their crops due to little, too much or no rain scenarios.

### *The importance of ready markets*

The study identified the reason why hitherto farmers within the study area were not connected to any efficient market. These include the remoteness of the communities, low production, nature of crops produced and poor road infrastructure among others. Findings from this research are consistent with literature on the impacts of ready markets on incomes

of smallholders. For instance, Wiggins and Keats (2013) in their study identified the key role the functioning of an effective market plays in improved incomes for smallholders in Bangladesh, Thailand and Kenya.

Similarly, this study on birds-eye chili cultivation and its impact on farmers' incomes revealed the critical role a functioning and effective market plays in how much is accrued from the activity as well as influencing decisions to grow the crop in the first place. The presence of a ready market is a motivation for farmers, making them more willing to venture into the cultivation of the crop. In addition to this, the presence and effective functioning of the market results in farmers reaping higher incomes as result of reducing or eliminating the costs associated with searching for buyers for their crops.

### **Recommendations**

This analysis of the impact of birds-eye chili cultivation on farmers' income revealed a number of thought provoking issues that can shape policy regarding future efforts that will be aimed at delivering higher incomes to smallholders through agriculture. The study also opens up certain questions creating opportunities for future research.

### **Policy Recommendations**

It is my opinion, based on the outcome of this research that for non-traditional crops and particularly birds-eye chili cultivation to be successful in raising incomes of smallholders and ultimately leading to positive impacts on overall poverty reduction efforts, the following should be considered in shaping future policy in this direction:

#### *Shift to high value crops*

Due to failure of the raising crop yields effort over the past years to achieve any meaningful positive impact on farmers' incomes, it will be necessary to shift to the introduction of new, high value export crops to smallholders especially in SSA. Indeed, the farmers themselves are sceptical of relying on increased yields from the cultivation of traditional to increase their incomes. Therefore there should be a comprehensive policy aimed at introducing new high value export crops to farmers as well as educating them on the benefits of its cultivation as well.

In order to avoid the challenges that were experienced with previous efforts to improve incomes through raising yields, it is strongly recommended that there should be conscious efforts to avoid over-concentration on birds-eye chili and for that matter any one type of high



value non-traditional crop alone. It is important to encourage farmers to grow other high value crops such as cherry tomatoes, carrots, sweet pepper and cucumber. With the successes being chalked by the cultivation of birds-eye chili, it is likely that more farmers will switch to its cultivation which can lead to increased supply with a possibility of prices being pushed down.

It will also be necessary to intensify agricultural extension and research services in this direction. This is important in aiding farmers to augment their productivity, raise their incomes and collaborate with one another and with agribusinesses. Having observed the role of local agricultural officers and extension officers in the study area, it is recommended that provision and public financing of extension services should increase, more work incentives for extension staff provided and a stronger political commitment to agricultural extension.

#### *Promotion of block farming*

The block farming system that is present in one of the study areas proved how the benefits of contract farming can be harnessed through the cultivation of crops on a single stretch of land and at the same time avoiding the problems of contract farming by leaving control of the farm in the hands of the farmers and allocating portions to each farmer for individual cultivation.

This method of farming should be promoted and supported by government and donors in order for smallholders to reap the benefits that come with it. In addition to this, there must be support in the form of investments in modern farm machinery and irrigation facilities. Preferably, the government should consider these in annual national budgetary allocation for agricultural development.

There is the likelihood of donor and development partners' becoming interested in this new farming method. Care must however be taken in order to avoid a complete take-over of the effort by them. It is recommended that donor support for this method of farming and related activity should be delivered directly to the farmers preferably by-passing political figures.

#### *Support for farmers unions and co-operatives*

Smallholders face high transactions costs in dealing with other stakeholders in the supply and value chain. In order for them to be able to aggregate sales, input purchase, loans and technical assistance, forming groups of farmers should be encouraged and supported. Not only does the formation of these groups reduce transactions costs, but also gives the farmers

greater bargaining power, especially when facing those with monopoly power, in addition to being a means by which farmers make their voice heard by policy-makers.

For farmers that have not yet been able to form these unions, support should be extended to them as well. It is recommended for instance that government purchases starter packs for these farmers instead of offering loan facilities to them.

#### *Development of efficient markets*

*‘Working with farmers will have little impact if the enabling environment that governments provide is inappropriate for development of market linkages’.*

Shepherd (2007 p 23).

The government has an important role to play in the development of markets for smallholders. Farmers, traders, processors and retailers cannot prosper in markets unless the government ensures that the basic conditions under which markets can function are provided. This will mean ensuring that there is an enabling or conducive rural investment climate and having to invest in the provision of rural public goods which private investors are not likely to provide.

#### *Climate change adaptation*

The introduction of new crops should be done along with interventions designed to assist farmers being cushioned against the impact of climatic variability. Climate change is increasing production risks in many farming systems, reducing the ability of farmers and rural societies to manage risks on their own. Smallholders must be helped with adaptation efforts which are defined by IPCC as ‘an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities’.

In this regard, adaptation efforts must include investments in water supply and irrigation, providing more accurate weather forecasts to farmers, seasonal changing of sowing dates and introduction of different variety or species of crops as well as other inputs such as fertilizer and new tillage methods.

#### **Recommendations for Future Research**

This study was limited to the impact of birds-eye chili cultivation on farmers’ income. Birds-eye chili is one example, among a number of non-traditional crops that are new to the study area and cultivated for export. For reasons such as time and resource constraints it was

impossible to expand the study to cover the impact of other new crops as well. This provides rich potential for researchers to explore in future in order to add to knowledge on this largely under explored topic.

Again, I noticed in the analysis of data for this study that farmers within the study area who are cultivating this new crop have either stopped cultivating the traditional staple crops they used to grow or now cultivate a limited quantity for their personal consumption. This raises questions as to whether or not this can or already is posing any threats to staple food production in the area. It will be important for future studies to look into this in order to avoid a situation where gains from the introduction of new crops could be offset by the consequences of a neglect of staple food cultivation.

Finally, it is unclear what impact the entry of commercial farmers into the cultivation of the crop will have on smallholders and their incomes. At the time of conducting this study, commercial farmers have not yet entered into the production of the crop in the study area. However, there is the possibility of this occurring in the future. It will be important to explore what impact this will have on smallholders in order to develop ways of avoiding a situation where this innovative effort from these smallholders will be derailed by commercial farmers.

### **Concluding Statement**

Birds-eye chili is an example of a high-value export crop that farmers are turning to in order to improve upon their incomes. This study revealed the positive impact its cultivation is having on incomes of farmers within the study area. Admittedly, level of income is just one indicator in measuring poverty, albeit a major indicator. Time and resource constraints did not allow for other indicators of poverty to be analysed vis-à-vis this improved income level. Nevertheless, in order to understand the implications of this change in income levels within the broader context of poverty reduction, it will be important to analyse other indicators such as access to safe drinking water, sanitation facilities, health, shelter, education and information as well.

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## **Appendix A**

### **INTERVIEW GUIDE/SCHEDULE**

#### **SECTION A**

- Customary/traditional greetings/ exchange of greetings
- Introduce myself and research assistant and state the purpose of my study
- State the importance of the informants input
- State and explain the rights of the respondents and my obligations as well
- Seek permission from respondent to use a recorder

#### **SECTION B (INTERVIEWS WITH FARMERS)**

- What do you grow?
- How long have you been growing them?
- Have you been growing the same crops over the years? Why?
- Focus to birds-eye chili
- Why did you decide to start growing them and why that particular crop?
- When did you start growing them?
- On what scale do you grow them and do you grow them as an individual farmer or as part of a farmers union?
- What problems or challenges do you face in growing these crops?
- Why do you think other farmers are not switching to the cultivation of non-traditional crops?
- How do you sell harvested crops and to whom?
- Do you know the final destination of your produce?
- How many times do you harvest in a year?
- What are some of the problems you face when growing these crops?
- How do you overcome them?
- Do you face more or less problems growing these crops than growing traditional crops?
- Since you started growing these crops do you make profits?
- (If you make profits) are you satisfied with the profits?
- Has the profits made any significant impact to your income?
- (If you don't make profits) are you thinking of stopping or willing to continue to try to make profits?
- Can you estimate how much you invest each year in growing these crops?
- Where does this investment come from?
- Where exactly does the investment go? Example: seeds, fertiliser etc.
- Can you estimate how much you make as profit (or loss) at the end of each year?
- Do you have plans of expanding your current production level or diversifying into other non-traditional crops? Why?
- Will you advise other farmers to cultivate these crops?

- Can you point to me other farmers who are also engaged in cultivating these crops?
- Important issues the farmer thinks I did not touch on
- Last words from informant
- Express appreciation

#### SECTION C (INTERVIEWS WITH KEY RESPONDENTS)

- Follow procedure as in Section A
- Ask key informant about his position, role and responsibilities
- How long has it been since non-traditional crops in general were introduced to the study area and birds eye chili specifically?
- What is/are the policy aim(s) of introducing these crops?
- In your opinion are these aims been achieved? If yes how? If no why?
- What structures (eg. roads, storage, and credit facilities) are in place towards achieving this aim?
- Are you satisfied with the achievements of these crops especially from a policy-maker angle?
- Do you think the introduction of these crops has impacted on the lives of the farmers who grow them? Why?
- What are the major concerns that these farmers come to you with?
- Do you think the farmers know the final market for their produce?
- Which areas do you think will need some improvements to make growing theses crops more successful?
- Important issues the informant thinks I did not touch on
- Last words from informant
- Express appreciation

#### FIELD OBSERVATION GUIDE

- Observe farmers on their farms especially their methods of farming
- Compare recent developments in the area, (e.g. roads, shops, new motorbike, cars etc) to my previous recollections of the area
- Try to find out if the crops of interest to me are sold and consumed locally, e.g. do these crops form part of the diet of the people now?

APPENDIX B  
LIST OF NAMED INFORMANTS AND BRIEF DESCRIPTION.  
(Note: not real names)

- Name: Sitso  
Location: Torkor  
Description: Female, 34 years old, widowed with 2 children, formerly unemployed, has been farming on Torkor block farm for 3 years.
- Name: Komla  
Location: Torkor  
Description: Male, 42 years old, married with 4 children, former fisherman, has been farming on Torkor block farms for 5 years.
- Name: Olu  
Location: Torkor  
Description: 72 years old, oldest farmer interviewed, widowed, former commercial driver, has been farming on Torkor block farm for 4 years.
- Name: Frank  
Location: Torkor  
Description: Male, 36 years old, single, former fisherman, has been farming on Torkor block farms for 4 years.
- Name: Ama  
Location: Torkor  
Description: Female, 30 years, single parent with 2 children, has been farming on Torkor block farm for 2 years.
- Name: Esinam  
Location: Torkor  
Description: Female, 39 years, married with 5 children, former trader, has been farming on Torkor block farm for 3 years.
- Name: Akpadi  
Location: Kudzra  
Description: Male, 45 years old, married with 6 children, has been growing vegetables for 5 years and chili for 2 years.
- Name: Mike  
Location: Kudzra  
Description: Male, 39 years old, physically challenged, single, former artisan, has been growing chili for 2 years
- Name: Sena  
Location: Kudzra  
Description: Male, 50 years old, married with 4 children, mixed crops farmer, has been growing chili on a portion of his farm for 1 year.

- Name: Yao  
Location: Kudzra  
Description: Male, 64 years, retired teacher, has been growing chili for 3 years.